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STRINGHALT AND SHIVERING.

BY W. WILLIAMS, F.R.C.V.S.

THE pathology of stringhalt is very obscure and I shall only refer to the views of several veterinarians as to the cause of its origin, and, indeed, these views are very varied and contradictory. Professor Dick said it was due to tumours in the lateral ventricles of the brain, he having known a badly stringhalted horse in which these tumours were found on a *post-mortem* examination. Evidently the peculiar gait was only a coincidence, as many cases of intercranial tumours have been known where this symptom was entirely absent. Professors Sewell and Spooner after a *post-mortem* examination of a horse which had been affected with stringhalt and finding that the origin of the ischiatic nerve in the spinal cord was infiltrated with blood, concluded that this was the cause of stringhalt. Others again consider it to be due to an affection of the muscles and nerves of the hind limb, a safe but hazy conclusion. Villate thinks it due to an abnormal development of the spine of the tibia, thus giving increased leverage to the muscles inserted into and originating in it, whilst others look upon it as due to chronic inflammation of the ischiatic nerve, and others to straightness of the hock—an absurd theory. Boccai sought the cause in contraction of the peroneus, and stated that it disappeared on division of its tendon. In this he is supported by several observers, who state that benefit is derived from division of this tendon, whilst Goubaux directs attention to the joints, particularly the hip joint, which he states is chronically inflamed in stringhalt.

I have ventured to ascribe it to an osseous deposit on the spine of the ischium, over which the great ischiatic nerve passes, having found this condition to exist in some subjects when examined *post-mortem*. I have, however, since then

found stringhalt where no abnormality could be detected in this region. My theory consequently falls to the ground.

Stringhalt is of common occurrence amongst cart horses in Scotland, much more so than amongst any other kind of horse, and I have frequently known horses, which I have examined myself and passed sound, become stringhalted in the course of a few months, after being put to heavy work, the affection manifesting itself insidiously and slowly. Is it not possible that in some instances the strong contraction and irregular action is due to the hypertrophy of the great muscles of the quarter, brought about by the horses having to start and draw heavy loads, particularly in such a hilly town as Edinburgh, in fact, to an increase of volume and tonicity of these muscles, and to be looked upon as an increase ofstrength and power? I simply venture this guess for your consideration and discussion.

With your permission, allow me to consider various opinions as the causation of stringhalt—

1. An affection of the muscles and nerves; but as Abilgard, the promoter of the theory, does not state what the affection is, I must dismiss his theory without further consideration, it being self-evident that either the muscles or the nerves—or both of them—must be abnormally affected.

2. The abnormal development of the spine of the tibia. If the word spine is rightly translated by Mr. Dollar, and if the Germans describe the crest of the tibia as the spine, all I can say is that the theory is a wild one, whichever way you take it. If the spine were hypertrophied, the abnormality would be in the stifle-joint, and there would be a kind of luxation, the spine not being able to work in the pulley-like hollow between the condyles of the femur. If, on the other hand, the crest be meant, we find that the following muscles are inserted into it, viz., triceps abductor femoris—abduct and extend; biceps rotator tibialis. Flex the stifle and tense the tibial fascia, and indirectly the vasti and crurens, all extensors. Now if the lever into which these muscles are inserted, or from which they originate, were over-developed, the leverage advantage would be apparent at every step, but this is not the case, as you all know, stringhalt being very frequently exceedingly irregular and intermitting, except in confirmed cases.

3. Chronic inflammation of ischiatic nerves. This is a more rational theory, as stringhalt has been known to follow tetanus; but it is reasonable to conclude that if the nerve were chronically inflamed there would be evidence of pain: this is conspicuous by its absence in stringhalt.

4. It has been supposed to be identical with sciatica in man; upon what ground this theory has been founded I do not know; sciatica being a very painful affection and associated, not with increased, but with diminished, muscular action, the limb being held stiffly and the muscles exercised as little as possible, forward movement being exceedingly difficult, the step short and associated with exquisite agony in many instances. Finally, no *post-mortem* proof has been found to support this conclusion.

5. One writer states "that the result of peripheral irritation chiefly affects the flexor muscles, because the extensors act whilst weight is thrown on the limb, and their contraction is, therefore, more easily controlled." I learn for the first time that this is the case. In my ignorance I had always supposed that the elevation of the limb was due to the action of the flexors, and that the extensors were called into operation when the foot was off the ground, and that they brought it back to its normal position. In many instances, however, both flexors and extensors are involved, for the foot is brought down sharply and strongly with more force than that of the ordinary force seen in the sound animal. I have known cases where the foot came to the ground so as to split the horse's shoes, or detach them from the hoof—in fact, I have known cases where it was almost an impossibility to get a shoe to remain on the foot.

6. Sewell and Spooner's conclusion that it was due to infiltration of the sciatic nerve in the spinal canal, cannot possibly hold good. It is very true that in azoturia the great muscles of the quarter and thigh are spasmodically contracted, and the great spinal nerves of the lumbar region are found congested *post-mortem*, but this is a tonic spasm, continuing without intermission, in some instances, for a few days, and followed with what might be expected, more or less complete loss of contractile power, paralysis being often succeeded by the rapid atrophy of these muscles. If death occurs during the earlier stages of the disease not only the nerves but the muscles themselves are infiltrated and congested.

7. Many think it is due to the contraction of the peroneus, and state that division of its tendon has proved advantageous. Now, the peroneus is a small muscle arising from the fibula, and is inserted into the extensor pedis. In fact, it is an assistant extensor of the foot, and must be in a passive condition whilst the foot is being flexed and elevated from the ground. If the stringhalt occurred whilst the foot was already

elevated, and at the commencement of the act of extension, I could understand that the peroneus were the offending muscle.

8. We again have another theory, viz., that of Goubaux, who states that it is due to disease of the joints, particularly the hip joint, which he says becomes chronically inflamed. In my experience, inflammation of the hip-joint—a rare form of lameness—is associated with very difficult elevation of the foot, and without the rapidity characteristic of stringhalt.

9. Then we have other and, what I consider, far-fetched theories, such as true stringhalt caused by interference with the movements of the patella. Now, it must be apparent to everyone that there can be no interference with the movements of the patella in stringhalt. If any at all, its movements are too easily effected, but this cannot be due to any fault in the patella itself, nor with the femoral trochlea.

II.

The theory of Dieckerhoff, divided into three heads :—

1. "True idiopathic stringhalt, due to contraction of the fascia of the thigh." Now, if the fascia were contracted, the animal would go upon the toes, as in chronic disease of the flexors of the foot.

2. "Complicated stringhalt, as from spavin, curb, ringbone, and other disease." I think we must dismiss these, for to have stringhalt associated with these conditions is very exceptional. No doubt the peripheral irritation of a bone-spavin gives rise to stringhalt, but I consider that even this is very rare.

3. "Symptomatic stringhalt, arising from inflammation in the pedal or other regions of the limb." Now, in laminitis of the hind feet, rapid catching up of the limbs when the horse is made to move is a characteristic symptom, but we don't call this stringhalt. If acute pain from any cause, particularly from sand-crack at the toe, be in one foot, the elevation is rapid but the extension of the limb and the placing of the foot on the ground are performed slowly, but if both feet are the seat of pain, both the elevation and depression are quickly performed, the pain in the foot on the ground causing the animal to put the elevated foot down again as quickly as possible.

Gentlemen, go where we will, read what we can, we find nothing but confusion combined with hazy ideas and bold assertions.

J. A. W. Dollar says he has seen stringhalt-like movements in horses suffering from habitual luxation of the patella.

Dividing it into true and false, Bassi says that stringhalt is caused by interference with the movements of the patella, and false stringhalt caused by a number of other diseases, such as spavin, etc., but principally by contraction in the tensor fasciæ latæ, in the fascia of the thigh, and in the extensor pedis tendon; whilst others consider it to simulate locomotor ataxia in man. Now, in locomotor ataxia there is a gradual and progressive loss of the power of co-ordination in the acts of volition. An awkward, unsteady gait is the earliest symptom; the feet are raised from the ground higher than usual, the heels are brought to ground before the toes, and then, as the disease advances, they are thrown involuntarily to right and left, the patient keeping his eyes fixed upon his limbs and the ground the whole time; if he is blindfolded, or closes his eyes, he falls to the ground at once. He must be *conscious* that his limbs and the ground have an existence. Here we have progressive loss of sensibility from disease commencing at the periphery of the sensory nerves, which, you are aware, emanate from the posterior (superior in the lower animals) part of the cord. Now, when these sensory nerves are diseased and lose their power of conductivity, the affected individual has to exercise the power of perception by keeping his eyes upon his limbs and upon the ground. He is, therefore, unable to walk in the dark.

But this is not the case with the horse, *either* in stringhalt *or* in shivering, neither is there loss of sensation, as in man. We cannot, therefore, classify this affection as locomotor ataxia.

Rupture, or disease of the flexor metatarsi, gives rise to symptoms simulating stringhalt; but if it be closely observed, it will be found that, whilst the foot is lifted suddenly from the ground, there is a backward movement of the limbs and the gastrocnemii are relaxed.

Stringhalt in Australia.—Said to be due to some form of indigestion, and associated with several kinds of foreign bodies, such as bones, etc., in the stomach. This requires further investigation.

Shivering.—Due to actual disease of the spinal cord and great nerves. I have two cases to which I can refer; one spine sent by Mr. Falkner, and which, when examined, presented atrophy of one lateral half of the cord, with shrinking and degeneration of its cells—conversions of its substance into fibrous tissue.

In the other case the horse was sent alive to the College, and so long as he was prevented from lying down, he could do any amount of work, but always presented the sign of aggravated shivering. If allowed to lie down, he was unable to rise, and when raised, scarcely able to stand for twenty minutes or half an hour, showing marked signs of paralysis; the paralytic symptoms then pass away. The *post-mortem*: congestion and red softening of the spinal cord and of the roots of the lumbar and ischiatic nerve.

Heredity.—I have no hesitation in stating that I consider the evidence which has come directly before my own observation, that both stringhalt and shivering are hereditary, and I think it a pity that more agricultural societies do not follow the good examples of the Royal, of the Stallion Shows, and include these conditions as hereditary unsoundness. By failing to do this, these conditions are on the increase in Scotland, where, as a rule, no examinations as to soundness, except in the case of a protest, are carried out.

It is unnecessary, I think, to say anything of the symptoms of stringhalt—the convulsive flexion of the hock, sometimes only detectable with difficulty even by the experienced; at other times so violent that the belly may be struck by the front of the hoof, is well known to you all. It is to be remarked that the symptoms are sometimes, though rarely, developed in the anterior limb.

Summary.

Etiology.—There is, perhaps, no pathological condition to which causes so varied and so opposite have been assigned. The nerves, the joints, the muscles, their tendons and aponeuroses, and the foot have all in turn found observers who have accused them of playing a *rôle* in the development of stringhalt.

Nerves.—For Professor Dick the cause of stringhalt was to be found in tumours involving the lateral ventricles of the brain.

Percival accused an affection of the spinal cord or of the motor nerves to the posterior limb, producing irregular muscular contraction.

Inflammation of the great sciatic nerve is the explanation given by many veterinarians, producing, according to some, too great irritation of flexors, and, according to others, paralysis of extensors and undue prominence of the flexors.

The Joints.—Erosions of the articular ends of bones in the articulations, loose bodies within the capsule, chronic inflam-

mation (arthritis deformans) in the femoro tibial only; in the femoro patella only; in the hock only; sometimes all of these affected. Ulceration of articular surface of astragalus, the synovial fossa hollowed in the superface of the bone being mistaken for an ulcer.

Muscles, Tendons, and Aponeuroses.—Dieckerhoff, retraction of tibial fascia, compressing and atrophying the muscles surrounded by it. This retraction prevents parperflexion, and to overcome the obstacle exaggerated action on the part of the accessory muscles. A chip of wood placed under tendon of peroneus below hock said to have given stringhalt. Partial rupture of tendo achilles is the explanation offered by Ovillard.

The Foot.—By action of the flexor tendons of the foot the flexion of the hock brings about a forcible flexion of the phalanges. Now if any obstacle be flexion of the digit, the horse makes an effort to overcome it, and if the obstacle suddenly disappears on account of the extra force employed there will be exaggerated flexion and so the action will be a convulsive catching up of the foot—stringhalt. Injuries to extensor tendons near its insertion from treads. Sandcracks, contraction of hoof compressing structures within, quittor, keratoma, etc.

Treatment.

The complexity of the remedial measures is correlated with that of the etiology of stringhalt.

Section of the peroneus tendon, either alone or plus a transverse cut into the tibial fascia.

Section of tensor fascia lata muscle.

Section of flexor metatarsi tendon above the hock.

Section of the internal straight ligament of the patella.

Section of the plantar nerves.

Section of anterior tibial nerve.

Section of posterior tibial nerve.

Antispasmodics (belladonna, aconite, &c.)

Blistering gluteus externus.

Cadiot—in one horse at different times.

1. Cut outer tibial nerve.
2. Peroneus tendon.
3. Plantar nerves.
4. Tendon of flexor metatarsi.

He proposed to cut also the internal straight ligament of the stifle, only the horse did not come back.

Rest.—Both in "Stringhalt" and "Shivering" rest some-

times has a remarkable effect, the symptoms entirely disappearing, reappearing however, after a few days' work. This is more particularly the case in "shivering." Stringhalt is sometimes aggravated by rest and want of exercise.

Both stringhalt and shivering constitute "unsoundness." In some cases the diagnosis, particularly of shivering, is difficult, the symptoms after rest being absent: therefore the veterinary surgeon should not, in such case, be held responsible.

CLEARING HOUSES.

BY A VETERINARY INSPECTOR.

FOR some time past public attention has been directed to the subject of Clearing Houses. Undoubtedly, if such were adopted, it would be a step in the right direction, as it is impossible for a thorough and satisfactory system of meat inspection to exist without such. Clearing Houses, however, are no new departure as they have existed for many years in all the principal continental towns and cities, and even in those of lesser numerical importance. Continental public authorities are fully cognisant of the great benefit accruing from a wholesome and uncontaminated food supply, believing in the old adage that prevention is better than cure. Every precaution that science and common-sense can suggest is adopted to attain this end. It is therefore not surprising that the vital question of controlling and examining all meat imported into a community should have been dealt with. In no other way can this be satisfactorily regulated and controlled than by the erection of examination stations. In this country, the great desire on the part of many of the promoters is that legislation should cause to be set apart a place, in every municipality, where the carcases of all kinds of diseased and dying animals can be consigned with all safety. Should such be admitted into consumption the owner would receive a remittance, but should the consignment be condemned there would be no exposure and no annoying prosecution. Under such circumstances it will be readily seen that the large centres of population would soon be the receptacle for all the diseased and unwholesome carcases from the surrounding country. Every means that human ingenuity could suggest would be called into requisition to defeat the ends of justice.

It is a farce—ludicrous, were it not fraught with so much danger to the community—to ask anyone to examine in many

instances the dressed carcase of an animal minus the internal organs, in order to form an opinion as to whether or not such flesh is "diseased, unsound, unwholesome or unfit" for human consumption. True, the transplanted butcher, the railway canvasser, or the superannuated policeman would be in no great dilemma. Why should he, when even the rudiments of pathology are unknown to him. It is, however, different with the scientist. He is not content with the obsolete and worthless rule of thumb, but must have data to work upon, and carefully weigh up in an intelligent manner all the pros and cons of each particular case. It is, however, impossible to do so when the entrails are wanting; and not only so, but when the serous membrane lining the large body cavities,—aye, even the body lymphatic glands—have been carefully removed to conceal the presence of disease. Does this startle you? It is, however, too true and is no fanciful or overdrawn picture. Continental clearing houses have no such philanthropic aim as the encouragement of such consignments. Let us turn, therefore, to the Continental systems, which have been perfected by the experience of years. Let us reap the benefit of the untiring energy of many eminent sanitarians, and by so doing we will be enabled to traverse in a single bound much that ought to have been accomplished in years gone by. As an example of the many excellent systems which obtain in the various continental countries, none will serve our purpose so well as that of Berlin. It must be remembered that the majority of those of other municipalities, although perhaps equally as effective and instructive, have in a great measure been modelled after the policy prevailing in the capital of the German Empire, and which has earned for itself a world-wide reputation for justice and thoroughness. In addition to the public abattoirs, there are four control or "*Untersuchongs* Stations," situated, roughly speaking, one in each quarter of the city. The number and situation of these clearing houses may be altered from time to time to suit the convenience and requirements of the trade, public notification of such alterations being given some time previous to removal. In each station presides a veterinary surgeon, with the requisite staff of assistant veterinary surgeons, microscopists, sample-takers, and stampers. The number of assistants varies from day to day, as the requirements of the trade demand. Should any sudden and unexpected influx necessitate an increase of the inspecting staff, a telephonic message is at once transmitted to the *Central Viehhof*. All complaints, reports, and

suggestions must be directed to the head veterinary surgeon, on whom devolves the responsibility of supervising and conducting the inspection, which is practically the same as that pursued in the *Central Viehhof*. Before examination takes place, satisfactory proof must be forthcoming in the shape of stamps, leads, or certificates that the animal had been examined immediately prior to slaughter by a veterinary surgeon, and found to have shown no evidence of ill-health. As a further safeguard, pork cannot be imported in smaller quantities than sides; other animals in full quarters. With these must be brought the corresponding heads and entrails. Certain joints, however, are permitted, these being full steak pieces, undivided hind quarters of sheep and calves, and mutton and veal loins. All forms of minced meat are strictly prohibited. To defray working expenses a small fee is exacted on every piece of meat submitted, but no charge is made in cases of re-examinations or for examining internal organs when these accompany carcases.

Under no condition can meat which has been imported into this city be offered for sale until it has been examined at one or other of these stations. Meat that is being conveyed from one part of the city to another, should it have been previously inspected and still shows unmistakeable evidence of having been so by the presence of the official stamp, does not require to be re-examined, but should the impression of the stamp have become obliterated or effaced, examination must again take place. A trader objecting to the decision of an inspector is at liberty to appeal to the Director or Chief of the department, who must examine and report on the meat in question within 24 hours after the complaint has been lodged. The complainant must deposit a sum of money along with his representation to defray the expenses, if any, incurred in obtaining this final decision. If after examination the flesh is found to be wholesome, it is stamped in accordance with the existing regulations. On the other hand, should it be found to be unhealthy, it is labelled "Rejected and Refused," and at once handed over to the Market Police for destruction. In cases where only certain portions of a carcase are unmarketable or unwholesome, after these have been removed, the remainder, provided with the official stamp, is allowed to go free. When examination reveals that at the time of slaughter the animal had been affected with some form of contagious disease, the carcase is, as soon as possible, removed from the establishment, the owner being held responsible for all expenses incurred in purification and disin-

fection. When requested, the veterinary inspector must give a written statement denoting the cause of condemnation, to the owner of a rejected carcase. Contravention of the regulations is punishable by a fine not exceeding 150 marks (£7 10s.) or by imprisonment

The following statistics for the year 1892—93 give a fair idea of the enormous quantities of imported meat annually examined in these stations :—

No. of Station.	Ox quarters.	Calves.	Sheep.	Swine.	Dues.	
					Marks.	Pg.
1	83,767	66,000	24,619	83,647	144,339	50
2	22,772	40,234	10,704	19,569	43,959	20
*6	5,277	3,878	1,446	2,386	6,094	00
7	9,701	6,352	222	8,431	14,283	60
8	14,144	36,000	5,230	3,776	21,802	60
Totals	135,661	152,464	42,221	117,809	230,478	90

From the same report we find that notwithstanding the great care bestowed on the selection and preparation of this meat, no less than 366 ox quarters, 80 swine, 22 sheep, 11 lambs 9 goats, 324¾ calves, 51 kilog. beef, 46·50 kilog. veal 2·0 kilog, pork, 28 ox heads, 49 ox tongues, 11 ox lungs, 16 ox livers, 110 swine lungs, 9 swine livers, 5 sheep lungs, 6 sheep livers, and 10 calves' kidneys were objected to. Among the tabulated diseases in question are found the deadly trichinosis, the no less dangerous if more insidious tuberculosis, as also the condition known as "measles" or "finnen," *i.e.*, the progenitors of the loathsome tapeworms; whilst actinomycosis, swine fever, erysipelas, gregarinosis, navel ill, etc., are also met with.

By far the most important of the Berlin clearing houses is what is known as Station No. 1, situated in the proximity of Alexander Platz Railway Station and the large wholesale Dead Meat Market. To this market, meat is consigned from all parts of the country, and the night preceding a sale is an extremely busy one. During such a night the writer was present when there were examined 749 ox quarters, 397 sheep, 111 calves and 599 pigs. The dues collected amounted to 1,047 marks 40 pg., which is equivalent to £52 7s. 5d. Throughout the whole night a constant stream of porters were arriving and departing with

* Station No. 6 no longer exists.

their respective quota, and no sooner had each been examined and stamped than it disappeared as if by magic only to be replaced by fresh consignments. In this veritable hive of activity all was concord and regularity; indeed, without these, it would have been impossible to cope with such a traffic. The writer heard no complaints as to business being hampered by delay, or by the injudicious handling of the meat—the arguments one hears so oft repeated in this country when the adoption of such a system is mooted. Wholesale and retail men alike were unanimous in praise of the system, and would not, if they could, revert to the old condition of "go as you please." Surely every honest and straightforward trader should hail the time when his customers could place implicit reliance in him by reason of the official brand on his wares. The public—not only of Edinburgh but all over the country—will remember how a few years ago ther confidence received a rude awakening, when they learned that a man highly respected and thought to be above suspicion so far forgot himself as to bring in under cover of night the carcase of an animal that had died from that terrible disease, anthrax. Many such instances could be quoted, if necessary, to show the necessity for a more thorough system of controlling our meat supply. In conclusion, it must be distinctly stated that there are many honest butchers who would welcome the adoption of such a system of control, knowing full well that legitimate restriction cannot and will not interfere in the slightest with business conducted on fair and square principles.

TRACING.

BY "TRACTARIAN."

MUCH has been written on the methods employed in connecting the horse to a movable load, both in the theoretical and practical aspects of the matter, and still, it cannot yet be said that they who may be considered as authorities upon the subject of animal traction are at all at one upon it. And further, it is to be feared that in face of all that has been written, conflicting though much of it be, the general principles which seem to underlie the entire question are in a great degree either ignored or neglected by a very large number of the users of animal power.

As many appliances in the useful arts would seem to have arrived at perfection just as they came to be superseded, there may not be wanting those who are inclined to say that

we are a little too late in the field *re* animal traction, when the auto-car seems destined to make any improvements our subject may be capable of, about as useful as an improved method of priming a flint lock. Most of us think differently. There will be draught horses for yet awhile.

It is the intention of the writer to now and again draw attention to matters of this kind, which along with the expression of views by other contributors, may lead to such a consensus of opinion as should enable the veterinarian to advise and suggest in matters with which he of all others ought to be the most conversant; for besides being a "medicine man," may he not claim to be pre-eminently an "animal engineer?" The present short disquisition is limited to "tracing," after the manner usually practiced in our large cities, although in essence applicable to what may be seen in country districts with the ordinary farm cart.

The conditions specially in view are a heavily loaded lorry drawn by a single horse between the shafts, with a trace-horse in front. All questions connected with what may be considered the proper angle of shaft are for the present left out, it being assumed that as is usually the case, the shafts are at an angle to the road of from 15° to 18°.

In the first instance it is premised that in accordance with a very common arrangement, the traces from the trace-horse are attached to points upon the shafts very nearly, if not quite coincident with parts at which the saddle-chain transfers the weight of the shafts to the back of the shaft-horse. Under these circumstances the traces from the front horse are almost, if not quite, horizontal in most cases, and therefore a considerable part of the traction exerted by the trace-horse is spent in pulling down the back of the shaft-horse in a direction tending to throw an increased strain upon its fore-legs, even should the animals be fairly well matched as to height. Even without a figure, this condition can be readily understood; a proportioned drawing, or what is easier, the measurement of the angle above-mentioned, with the assistance of a table of natural sines is all that is necessary to determine the amonnt of strain thus thrown on the back of the shaft-horse. Multiplying the load by the natural sine of the angle, nearly equals taking one third of it in the case cited.

Allowing, as an average case, the draught of the shaft-horse to be 130 lbs., and that of the trace-horse to be an equal amount, a pressure of somewhere about 40 lbs. is thrown directly upon the back of the former animal; and further, supposing, as usually happens from the superior

freshness of the trace-horse, the actual pull of that animal to be more than above mentioned, the downward strain upon the back of the shaft-horse may be much more.

This strain may, in another case, quite as common as the above, perhaps, be still greater, on the principle of the lever.

This latter condition is present when, instead of fixing the traces of the front horse to the points mentioned above, they are attached to points at, or very near to, the extremities of the shafts. The shaft now becomes a lever of the second order, with the entire length of shaft for its long arm, and the distance between the attachment of the saddle-chain and the vehicular end of the shaft for its short one. As these proportions are usually about 3 to 2, the aforementioned strain becomes 60 lbs. as a minimum.

In actual amount these wasted pressures may not seem extravagantly large, but considering their proportions to the entire pull actually needed, it does look somewhat neglectful of the ordinary simple and well-known principles of mechanics that they should be allowed at all.

In several instances, pressures much greater than the above must often in this way be produced, especially where, as often happens, the trace-horse is not of sufficient height to match the other, the front trace actually sloping *upwards* and backwards.

Were it not for considerations connected with facilities for turning, avoidance of friction of the front traces against the sides of the shaft-horse, &c., there is no doubt but that the best points of attachment for the front traces would be near, if not quite at, the part where the shafts or hind traces are attached to the vehicle.

Without a special "splinter bar" for the occasion, (which is not likely to be the case in ordinary practice,) the above desideratum is scarcely attainable, but at any rate the indication is to attach the traces of the trace-horse as far back upon the shafts as possible.

Should the shafts be horizontal, as some advocate (a point to be subsequently discussed), it would not matter where these traces were attached, so far at least as the question at present at issue is concerned, except in the awkward circumstances previously mentioned, where the trace-horse was too small, in which case the defect would still exist, and be modified by the same procedure recommended in the former instance. It has been more than once suggested, for other reasons than those at present alluded to, that the attachment

of the points of traction, whether by shaft or by flexible trace, to the vehicle, should be adjustable in height.

Were this possible, and there seems no reason why it should not be so, most of the difficulties connected with tracing appliances would be done away with. Unfortunately, however, there is perhaps no department of mechanical engineering in which old established notions have prevented so much the advent of innovations as that connected with the building of carts and coaches. Quite as much as in trappings for man and beast, fashion has had more to say than "sense" or science.

For the sake of simplicity it has been assumed that in all the cases cited, traction upon the load by the shaft-horse has been through the shafts and not through separate traces. It would not have been difficult to include such cases as well, just as the coach-pole and similar arrangements can easily be investigated by the same simple methods. It must certainly appear somewhat strange to the professional critic that all the important, what may be called classical writings upon "draught," have been executed by men who presumably knew less of the anatomy of a horse than of a wheelbarrow,—this is not as it ought to be.

Fancy a veterinarian giving directions or advice about the coupling of a locomotive engine! and yet these same "engineer fellows" are just the kind of men who have written nearly all we know about the draught of horses.

Except in a few cases not worth mentioning, the horse is bred and kept by civilised man for draught purposes alone, as a motive power, in fact, and yet it is to be feared in very many cases, to use the simile already employed, the man who has given instructions concerning the purchase, the efficient maintenance of the motor, and how best to raise the steam in it when required, does not feel himself equally at home in advising as to the application of the mechanism.

THE ANATOMY OF NEURECTOMY.

BY O. CHARNOCK BRADLEY, PROFESSOR, NEW VETERINARY COLLEGE.

THE recent adoption by British veterinary surgeons of neurectomy of the median nerve in the region of the elbow joint, has tended to stimulate interest in neurectomies of the fore-limb generally, and therefore a *resumé* of the anatomy of the parts involved in the various operations may not be altogether out of place or unwelcome. For this reason, and also

because of numerous questions which have of late been put to me, I have been induced to pen a brief account of the neurectomies viewed from a purely anatomical standpoint.

It would be as well at the outset to take a general view of the origin, course, and distribution of the two nerves—median and ulnar—of the fore-limb which are operated upon. The median nerve is a branch of the brachial plexus and may be considered to arise by two roots, the anterior of which is derived from the sixth, seventh, and eighth cervical and the posterior from the eighth cervical and first dorsal nerves. Gaining the anterior border of the humeral artery the nerve accompanies this vessel downwards to its termination and then follows its posterior radial branch. The relations of the nerve to the artery at and about the elbow-joint are important from a surgical point of view. Above the elbow the

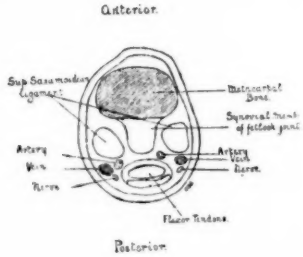

Fig. 1.

nerve is placed in front of the posterior radial artery but on a level with the articulation the nerve crosses the artery very obliquely, in fact for some short distance the nerve lies upon the artery and conceals it from view. Below the joint the nerve gains the posterior aspect of the artery, the two structures soon disappearing beneath the flexor metacarpi internus by passing between the anterior border of that muscle and the radius.

At some variable point above the carpus—usually in the lower third of the radius—the median nerve bifurcates; one branch continues downwards, accompanied by the artery, as the internal plantar nerve. The other branch joins the ulnar immediately above the carpus, and so forms the external plantar nerve.

The course and relations of the two plantar nerves differ somewhat. The internal nerve passes beneath the

posterior annular ligament of the carpus in close relationship with the lateral border of the flexor tendons, and accompanied by the great metacarpal artery, the artery being in front of the nerve. This relationship continues to the level of the sesamoid bones, at which point the nerve divides into the three digital branches—posterior, middle, and anterior. The posterior digital nerve is the largest and most important branch, and preserves the usual relations with the artery. The other digital nerves are not surgically important; they cross the artery obliquely, the anterior leaving the artery altogether, while the middle lies along its anterior border.

About the middle of the metacarpal region the internal plantar nerve gives off a branch which winds round the posterior surface of the flexor tendons in an oblique manner passing downwards and outwards to join the external plantar nerve. This communication can be felt through the skin in

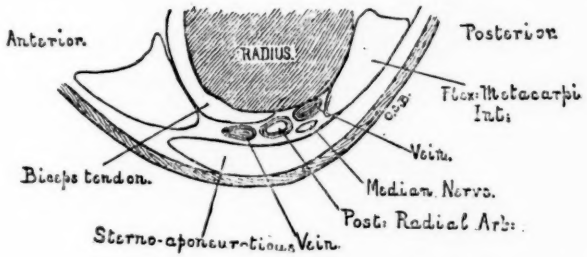

Fig. 2.

some subjects, and is of importance, because external plantar neurectomy must be performed below the point of union.

The *ulnar nerve*, also a branch of the brachial plexus, is formed by the first and second dorsal. It passes downwards, behind the humeral artery, for some distance, and then leaving that vessel, it gains the cover of the scapulo-ulnaris muscle; on the posterior aspect of the elbow-joint it passes between the ulnar and humeral heads of the flexor metacarpi medius, along the posterior border of which muscles it runs downwards towards the carpus. Just above the trapezium (or pisiform) it is joined by the branch from the median (before mentioned); the external plantar nerve is thus formed.

The external plantar nerve crosses the posterior annular ligament of the carpus in an oblique manner—downwards and outwards—being protected by a special sheath of deep

fascia. Gaining the outer aspect of the limb, the disposition of this nerve is similar to that of the internal plantar, except that it has no artery of moment related with it. At a variable distance above the fetlock-usually a little over an inch above the "button" of the external splint—the oblique communicating branch from the internal nerve joins the external.

Median Neurectomy.

Surface Anatomy.—The seat of operation is a short distance below the inner aspect of the elbow-joint. The inner border of the radius is subcutaneous throughout almost its entire extent, the upper extremity only being covered by the aponeurosis of the sterno-aponeuroticus (Pectoralis transversus). The flexor metacarpi internus lies behind the inner border of the radius, the muscle and bone forming a groove in which the median nerve lies for a short distance below the elbow-joint. The head of the radius forms a more or less well-marked projection, which may be either seen or felt beneath the skin. Immediately in front of this eminence, the tendon of insertion of the biceps (Flexor brachii) forms a definite ridge and between the two the posterior radial artery and median nerve will be found to roll beneath the finger.

Structures involved in the operation.—The accompanying diagram (fig. 2) of a transverse section of the limb on a level with the seat of operation, will show what structures it is necessary to incise and in what order; the tissues being (1) the skin, (2) superficial fascia, (3) deep fascia, (4) aponeurosis of the sterno-aponeuroticus (Pectoralis transversus) and (5) some fibrous tissue forming a sheath for the blood vessels and nerves.

The exact relationship of the artery and nerve is liable to to variation. Ellenberger and Baum in their "*Anatomie des Pferdes*," figure the nerve as being in front of the artery, but British anatomists place the structures in the reverse position. In subjects which I have examined, and that most carefully, in no instance have I found the parts as Ellenberger and Baum figure them, though in some cases the nerve has run along the artery for some distance.

It should be borne in mind that on a level with or immediately below the elbow-joint, the median nerve contributes a muscular branch or branches to the flexor muscles; the operation should therefore be performed below the point at which branch this is given off. Veins being very variable in

their disposition, it is impossible to lay down any rule for their arrangement with reference to the nerve, but they are readily recognised by their purple colour and the ease with which they are emptied on pressure.

Plantar Neurectomy.

Surface Anatomy.—The flexor tendons from the well-marked and well-known posterior border of the limb in the metacarpal region. Immediately in front of the tendons is a groove in which the blood-vessels and nerve lie, the anterior boundary of this groove being formed by the superior sesamoidean ligament (fig. 1). The "buttons" of the splints

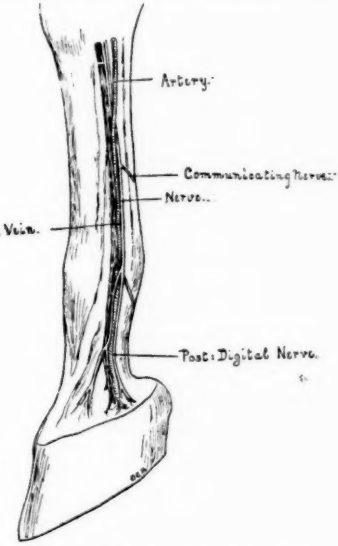

Fig. 3.

are also easily recognised landmarks, the inner being usually the larger and lower.

Structures involved.—The tissues incised in this operation are (1) the skin, (2) superficial fascia, and (3) deep fascia; the vessels and nerves are provided with a sheath formed by the deep fascia. The accompanying diagram (fig. 3) will explain the relationship of the parts much better than any written description. It is to be noted that the outer nerve is accompanied by a vein only, the artery being deep-seated and protected from any risk of injury during the operation.

A small artery, however, not infrequently lies along the nerve, but it is of so small a calibre in the majority of cases that it may be neglected. It will be remembered that the synovial membrane of the fetlock joint is prolonged upwards for some distance between the two branches of the superior sesamoidean ligament, and is therefore liable to injury when distended.

Digital Neurectomy.

As this operation is not commonly performed, it will only be necessary to say that the relationship of the structure is very similar to that given above.

The posterior digital nerve is placed behind the digital artery and on the lateral border of the flexor tendons (fig. 1).

VOLVULUS THE RESULT OF FALLS.

BY H. LOCKE, ESQ., M.R.C.V.S.

ON the evening of November 20th last, a black gelding, five years old was brought to the College Infirmary suffering from a violent attack of colic. The man who led the horse into the yard stated that the animal had first shown signs of illness about half-an-hour before, while in harness. It was at once taken home, unyoked and brought for treatment, and was only kept from lying in the street with great difficulty, On being placed in a box the usual symptoms of acute colic manifested themselves. The horse went down, rolled over, kicked out with the hind-legs and pawed persistently with its fore-feet. The respiration was hurried, there was a good deal of sweating, the abdomen was retracted, and there was slight tympany. A colic draught, consisting of tincture of opium, turpentine and oil was given after a good deal of trouble, but with no apparent effect in subduing the pain. In about three-quarters of an hour a hypodermic injection of morphia and atropia was administered, the rectum was explored (a few pellets of rather hard fæces being removed), and an enema thrown up. The pain seemed to be as severe as before for a quarter of an hour when there came a lull, and the patient gave promise of recovery.

After the lapse of half-an-hour, however, there was a return of the colicky symptoms in, if possible, an aggravated form. The tympany was more pronounced, the respirations and pulse greatly accelerated, and the body was bathed in sweat.

The horse lay most of the time rolling and kicking, and when on its feet, it stood with nose on the ground, scraping

continuously. Nothing definite could be learnt by rectal examination. This viscus was quite empty, and the large colon could be felt full of hard fæces. Enemas of warm water and oil, and the usual anodyne treatment was carried out, the cæcum was punctured to relieve the tympany, but the horse succumbed about five o'clock on the morning after admission. The *post-mortem* revealed a change of relation of the small intestine which was twisted in the direction of its long axis, and strangulated in the mesentery.

A large quantity of ascarides was found in the bowel. On reporting the cause of death to the owners, they stated that they were not at all surprised, as the animal had been thrown twice in tracing a heaving-laden lurry out of a deep place where it had stuck.

It appears that our patient, which was a light van horse, was being driven past the place, and the driver finding one of the firm's horses unable to shift his load loosed out and used his horse as a tracer. Being a high-spirited animal he made many violent attempts to start the load, and twice or three times threw himself down in his efforts. This may, of course, not have been the determining cause of the volvulus ; it may only have been a coincidence, still I ought to point out that the organs were quite healthy, and that the contents of the large intestines were not unduly hard. Although the viscera contained a large amount of fæces, scarcely a particle was passed into the rectum.

GASTRORRHŒA PARASITICA IN SHEEP,

MR. A. M. MUNRO, NEW VETERINARY COLLEGE.

My attention was first drawn to this disease in the autumn and winter of 1895, while assistant to Mr. Brown, V.S., Invergordon.

The first farm I visited was a well drained and highly cultivated one, naturally dry, and with a high situation in Mid-Ross.

For several years the disease had been more or less prevalent, but recurred with much greater severity in 1895, that autumn being a rather wet one.

The sheep affected were chiefly cross-breds and cheviots ; blackfaced, although in the same flock, and altogether under the same circumstances, were very rarely affected a rather remarkable circumstance.

The lambs, when turned on to the pastures, throve well for a time, but after a while they began to lose flesh very rapidly.

The symptoms present were extremely rapid loss of flesh, appetite in abeyance, diarrhœa. Thethirst was very great, it being scarcely possible to keep the animals from a stream of water flowing at the side of the field.

On *post-mortem* the carcases were greatly emaciated and almost bloodless. In very few cases could the strongylus filaria be found in the lungs, but the abomasum contained a quantity of dirty fluid, in which the strongylus contortus could be clearly seen with the naked eye. In some few cases the liver was affected, small white necrosed areas being seen on the surface and throughout the parenchyma of the organ.

Treatment.—The lambs were all housed and hand-fed on corn and cake, doses of turpentine and oil were given, sulphate of iron put into the food, and also a liberal allowance of salt.

Under the above treatment they seemed to improve, and apparently recover, but this only lasted for two or three months, when the disease broke out again.

Various farms in Easter Ross have been affected with this disease for some years, and it is a cause of great loss to the farmers, about 15 to 20 per cent. of the sheep dying. In some cases the sheep were fed on turnips for weeks before they were affected.

Last autumn (1896) it again broke out in Easter Ross with much greater severity, owing, no doubt, to the very wet season.

Various forms of treatment were tried, but none seemed to effect a cure.

Prevention is the only method of stamping it out, and to do this common salt must be used unsparingly, both in the food and to the land.

This was tried on various farms, with the result that the sheep pasturing on the fields that had been well salted were quite free from the disease, while those pasturing on unsalted fields were more or less affected.

RINDERPEST IN AFRICA.

In giving a brief account of the progress of the disease and the steps taken by Government to arrest it, it is a little difficult to know where to begin, but as our present arrangements for fighting the disease are now in working order, and they being of most interest to the public, and really of the only practical importance, it would be useless to hark back to our modes of warfare employed in the past.

It will, perhaps, be best to start from the beginning of October, when the Rinderpest Commission came to an end, and new methods for organisation, etc., had to be employed and other arrangements for carrying them out devised.

It was about that time that the great majority of farmers in Bechuanaland showed unmistakably that they would no longer assist, even in the very smallest degree; and that they were opposed to Government taking the necessary steps to stay the spread of the disease, was made very evident at public meetings, to say nothing of the active opposition shown to the police in the execution of their duty.

Dr. Hutcheon, therefore, felt it was useless, without the co-operation of farmers, to continue the policy in that territory, of attempting to stamp out the disease by the slaughter of all infected cattle, and Bechuanaland has had; in consequence, to be more or less abandoned to its fate.

Prior to the time spoken of, rinderpest had made its appearance in Griqualand West, and it was decided that the time had arrived for putting more stringent regulations in force and guarding the Orange River with greater care, and to do this effectively, it was thought necessary, not only to increase the number of guards considerably, but also to have a clear belt at the river, and one has, therefore, been proclaimed on the south bank a thousand yards broad. Along this line a barbed wire fence is being erected, the portion from Herschel to Hopetown being given out in lengths of about fifty miles to various parties who have contracted to do the work, and it is expected that by far the greater portion of this will be completed in a day or two. The remaining portion, that is from Barkly East to Telle Spruit, and from Hopetown to German territory, has been undertaken by the Public Works Department. This, it is expected, will take considerably longer to complete, as it is much the most difficult portion to construct.

In the "clear belt" no stock will be allowed, and it has, therefore, been necessary for farmers to find pasture and water for their stock, and this, owing chiefly to the severe drought, has proved by no means an easy matter, but every assistance has been afforded farmers to move their stock by Government.

In cases where it was impossible to find grazing and water elsewhere, Government has decided to buy up the stock and dispose of it in market to the north.

The Orange River Cordon has now been divided at the point on the river where the districts of Prieska and Hope-

town meet; the western portion being placed under the control of Mr. J. H. Scott, and the eastern, so far as Barkly East, under Captain Jenner. The guarding of the frontier of the Transkeian Territories, which is also being fenced, is in the hands of Mr. Stanford, the Chief Magistrate of Griqualand East.

As regards the police, the number employed at the present time on rinderpest duty amount to close upon 2,300. From the Junction of the Vaal and Orange Rivers to Barkly East 907 men, including 72 of the C.M.R., and 530 Cape police, have been placed to guard the clear belt under Commissioner Davies; and from Fourteen streams on the Vaal River and the north bank of the Orange River to German territory there are 718 guards under Commissioner Robinson. On the opposite bank, Mr. Scott has 214 special police and 56 of the Cape police.

In Griqualand West there are 288 police doing special quarantining and patrolling, etc., and 47 police guarding the fence between Griqualand West and the Free State.

Both Mr. Scott and Captain Jeuner have full authority to employ as many more men as they think necessary.—*Agricultural Journal*, Cape Colony,

November 9th, 1896.

REFLECTIONS OF AN UNSUCCESSFUL STUDENT.

SIR,—Yes, the Examinations are over, and I, like some others, am in *statu quo ante*. However, we gain knowledge even at the Examination table. I must suck some comfort from that, I suppose, albeit it is knowledge somewhat dearly acquired. It is something to know what the Examiners want. The deuce of it is, though, that they do not always want the same thing. What is orthodox at Christmas may be blank heresy in July. At the last Examination the omission of lung lesions, in an enumeration of the *post-mortem* appearances in swine plague, would have imperiled a student's chances of passing; and at this we are informed that lung mischief is scarcely ever observed. This sort of thing makes a fellow, with a head like mine, feel that 'e don't know where 'e are. We are taught at College that in pneumonia the germ giving rise to it may have extra pulmonary localizations, may attack the pleura, the pericardium, the endocardium, the sheaths of tendons, and other synovial membranes, and, indeed, that it may attack these more severely than the lungs. Why cannot the same thing

happen in swine plague? While its place of choice is undoubtedly the intestine, does not the causative bacterium find a suitable soil, in other places; in the lung very frequently, in the spinal canal sometimes; in the kidneys some other times (I remember an old pig-keeper telling me that "passing bloody water" was a sure sign of swine plague, and I have sometimes seen it in chronic cases myself). This question of the presence or absence of pulmonary lesions in this disease is to my mind one that ought to be settled. In my experience they are quite constant, and show themselves as hæmorrhagic areas, as collapsed bits, as broncho-pneumonia (at one time in isolated patches, at another as large consolidations, and again as a caseous pneumonia). Pleurisy, too, is not infrequent, with slight adhesions and a small amount of fluid in the thorax.

I remember seeing four outbreaks in which a great number of pigs were affected, and I am perfectly certain that 25 per cent. of the animals were coughing.

Surely their cough did not arise from a diseased cæcum or ileum. I say that it depresses and perplexes a man to find that what he hears in the lecture room is not accepted by those who, above all others, he is desirous of being in harmony with—his examiners, to whom I wish a happy New Year and settled convictions.—Yours,

HOPEFUL.

Cases.

A DIFFICULT CALVING CASE.

BY A. W. FINDLAY, ESQ., M.R.C.V.S.

AN aged shorthorn cow, the property of T. Nix, Esq., Neatmore Hall, Welney, calved on Monday morning, and went on all right, eating well, and showing every appearance of complete recovery. On Wednesday night, however, the cow became uneasy, and was occasionally seized with what appeared to be parturient pains. The foreman gave the animal some assistance, and found another calf coming, seemingly in proper position, but as no progress could be made towards delivery, the calf remaining jambed in the pelvis, we were sent for. On making an examination a dead fœtus was found. It was greatly swollen, and emphysematous; the head, forelegs and shoulders were engaged in the pelvis, and on exploring carefully the inferior

part of the body of the fœtus, to find the reason of its not advancing, it was found that the two hind-legs were also in the pelvis. After several unsuccessful attempts had been made to push the fœtus back into the uterus, and also to return the hind-legs, embryotomy was determined on. The head and fore-legs were easily accessable, and the head, after skinning, was removed. Then a fore-leg was skinned, the muscles inside the shoulder deeply incised, and a few pulls brought it away entire. Inserting a sharp hook into the ribs, they were cut through, and were then twisted off from the spine.

The thoracic and some of the abdominal contents were next removed. Introducing the sharp hook into the vertebræ as far back as possible, the spine was divided and after a little more skinning of the trunk, the anterior portion of the fœtus was brought away. The hind legs were now corded and drawn forward while slight propulsion exerted on the remaining posterior portion of the fœtus sufficed to return it into the uterus; on now pulling the cords we soon brought it away.

The fœtus had evidently been dead some little time; it was emphysematous, the hair was easily rubbed off and it was beginning to putrefy.

The after treatment consisted in irrigations of the uterus with Condy's fluid and the administration of three or four stimulant and anodyne draughts. The temperature was high: 105 for two days and then returned to normal and the cow made a perfect recovery.

THE TREATMENT OF BURNS WITH IODINE.

BY A. M. PORTEOUS, NEW VETERINARY COLLEGE.

On September 12th, while seeing practice with Mr. Cockburn, M.R.C.V.S., Eastwood, I was, during my principal's absence, sent for to see a pony in the High Park pit which had been burnt in an explosion of gas.

I found the animal—a bay cob, 6 years old—in a very deplorable condition. The flames seemed to have exerted their effects principally on the anterior part of the body, the head and neck having suffered most. The head was greatly swollen, this being particularly noticeable about the nostrils. On the left side of the face two large patches of skin were wrinkled up and appeared ready to fall off. On the right side there were numerous smaller marked patches all bathed

in an abundant serosity. The ears were hanging limp, œdematous and frizzled. Every trace of mane and forelock had disappeared. There were numerous excoreated places on both sides of the neck and on the shoulders. The skin in these regions was greatly infiltrated. The animal was dejected, respiration was accomplished with much difficulty, and altogether the case looked anything but a promising one. Mixing three ounces of tincture of iodine with a pint of water, I thoroughly soaked the parts affected with the mixture, and afterwards covered them with a paste of starch and water.

This was repeated on the following days to the parts where the dressing had separated from the underlying skin and resulted in a perfect recovery in the course of three weeks. The driver who also had been pretty severely burnt, made use of the same application with equally satisfactory results. We know that iodine is one of the most energetic germicides and it is probable that its therapeutic efficacy in burns is due to this quality, as it will prevent the microbic invasion of the half-dead tissues which otherwise would readily fall a prey to such an attack. In whatever way it acts, it is certainly a very reliable agent in these cases and when properly diluted, so far from having any virulent action, its effects seem rather to be of a soothing nature.

Editorial.

A RETROSPECT and survey of the work that has been done in the veterinary world during the past year, furnishes a large amount of material for review, of interest and importance to the profession.

In medicine, the serum therapeutics of disease continued to attract much attention and investigation. The treatment of tetanus by the antitoxin of that disease has not as yet yielded any marked degree of success, either in man or horse, but its efficacy as a prophylactic has been established by Continental experimentalists. The success now attained by treating diphtheria with its antitoxic serum encourages us in the belief that similar antitoxic serums may yet be devised for other diseases that may prove equally efficacious.

During the year the mallein and tuberculin preparations have received extensive trial as tests for the discovery of glanders and tuberculosis that may be lurking (while giving no external evidence of their existence) in the systems of horses and cattle. The results have established a firm con-

viction of their efficacy. The fact of several cases of Tuberculosis in the horse and dog having been thought singular enough to record in the professional journals is doubtless due to improved bacteriological knowledge, and not to the disease having been hitherto so rare in the equine and canine species, as was formerly believed.

The Royal Commission appointed for the second time, with the view of devising measures necessary for the preservation of our meat and milk supplies from tuberculous contamination, has a formidable problem to solve, and that success may attend their efforts is, we are sure, the earnest wish of all veterinarians.

The use of Chloride of Barium in certain affections of the intestinal tract has been zealously resorted to at home and abroad, the consensus of opinion being strongly in favour of its great utility. Intravenous injections seem to be the form in which its most certain and beneficial effects are witnessed.

Antiseptics in great numbers, each one said to be better than the other, have been brought to the notice of the veterinary and medical professions.

The Röntgen X Rays, a new kind of light, which can penetrate wood and the flesh of men and animals, has been the great discovery of the year. In human surgery the X Rays have already been employed in locating needles and bullets before operating, also in doubtful cases of fractures, dislocations, etc., where swelling has obscured the lesions, and further, to ascertain when fractured extremities are in apposition without taking off the splints. It is obvious that veterinary surgery must benefit in the utility of this great discovery.

The removal of the restrictions on auto-motor cars is an event worthy of note, as a possibility has thereby been created that the employment of horses for draught purposes may be dispensed with. That auto-motor cars will displace the horse to some extent in the street-transport of the parcels and heavy goods of commerce is, in my opinion, highly probable; but I also feel confident that other openings for the use of the noble animal will, with equal probability, be found.

It has been my gratifying duty to record the promulgation of the Royal Warrant effecting an increase in the retired pay of the Officers of the Army Veterinary Department. The efficiency displayed by our Army confrères continues to evoke high praise from all quarters.

The Veterinary Department of the Board of Agriculture, underwent a few slight changes for the better, in regard more

particularly to the powers given to veterinary surgeons when dealing with swine fever outbreaks. The results have been satisfactory to the Board and the public. The profession, however, will never be content until the position of Principal veterinary surgeon at present occupied by a retired *militaire* be filled by a *veterinaire* as in former times.

The Societies and Associations of the profession in the number of their meetings, and in the excellence of the papers read and discussed, have shewn no falling off. A marked improvement is apparent in the literary and scientific quality of the subjects taken up by them, and among the many worthy of special mention, were the lecture and demonstration of the Röntgen X Rays by Professor George Paton, Cirencester, and also those on the Median Neurectomy by Professor Hobday, London.

Veterinary education. The vexed question of the system of education best adapted to produce a skilful veterinary surgeon assumed a more settled aspect during the year, although the war of opinions resulted in a few notable changes in the composition of the Council of the R. C. V. S. The abolition of the summer session, that in the interests of students and teachers we have always advocated, was accomplished through the acceptance of the soundness of my views on this point, by two or three teaching schools.

Another event in the Annus Veterinarius falls to be recorded—a duty the Editor approaches with feelings of pleasure not unmingled with diffidence. He refers to the investigation he was requested to take in hand by the Government of Jamaica with the view of discovering the nature and causes of a disease that was decimating the cattle of that island. He has briefly to state that his selection by the Jamaican Government was pleasing to him in being an acknowledgment that veterinary knowledge in the old country still held its own in the world's estimation, and he is happy to inform his friends and readers that since his return, after three months of hard work, highly gratifying accounts have reached him to the effect that the adoption of the measures he advised has proved to be successful. The report furnished by him to the Government of Jamaica has been published in the two last issues of the JOURNAL.

The obituary list of the past year notes the death of several members of the profession who attained a great age. The diploma of Mr. J. Chapman bears date 1833; that of Mr. Robt. Aitkens, 1837; Mr. Felix Delany, 1841; and the diploma of Mr. F. Talburt, 1827. Mr. Henry King and Mr.

Andrew Balfour pursued the practice of their profession for over 50 years.

French veterinarians mourn the loss of M. Gabriel Colin, the famous veterinary physiologist. He is a loss to the whole profession. Mr. James Collins, formerly Principal Army Veterinary Surgeon, whose services were greatly appreciated, also passed away during the year.

WE have to congratulate Mr. Finlay Dun, F.R.C.V.S., Edinburgh, on his appointment as Examiner on Veterinary Hygiene in the Edinburgh University for the period of four years, in succession to Professor W. O. Williams, whose term of office has expired.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

The Examinations in London.

The Written Examinations in the various classes was held on Friday December 11th, at the Examination Hall of the Royal College of Physicians and Surgeons, Victoria Embankment, S.W.; the Oral and Practical Examinations at 10, Red Lion Square, W.C.; and the Royal Veterinary College on and between December 14th and 17th. The following students passed their final examinations, and were admitted members of the Royal College of Veterinary Surgeons:—

Mr. G. Conder.
„ G. H. Butcher.
„ S. de M. Woodward.
„ W. M. Power.
„ J. Eadie.
„ H. W. Young.
Mr. E. T. Stanley.
„ F. R. Brandt.
„ W. C. Lowe.
„ W. S. Mulvey.
„ H. Mitton.
„ C. H. Stephens.

The following students passed their Third examination under the four years' course:—

Mr. W. H. Brown.
„ J. Buckingham.
*„ R. C. Cochrane.
„ A. S. Head.
„ F. C. Hobbs.
Mr. L. W. Heelis.
„ H. J. O'Neill.
*„ C. M. Park.
„ C. W. B. Sikes.
„ J. B. Walker.

Mr. W. M. Williams.

The following students passed their Second examination:—

Mr. G. F. Gould.
„ M. Glasse.
„ R. G. Bell.
„ H. W. Fernandes.
„ C. Jolliffe.
Mr. P. Broad.
„ A. M. Dowling.
*„ H. S. Elphick.
„ F. H. Ingersoll.
„ F. S. Probyn.

* Mr. H. D. Serjeant.

Marked thus * passed with 2nd Class Honours.

The following students passed their First Examination :—

† Mr. D. A. Aitchison.
* „ J. W. Flanagan.
„ C. G. Heard.
„ F. E. Mason.
Mr. H. S. Moseley.
„ R. H. Pinching.
† „ C. E. Steel.
* „ A. Spicer.

Fellowship Degree.

A meeting of the Court of Examiners for this degree was held on Saturday, December 12th, 1896, in London, when the following having passed the necessary tests were admitted Fellows of the Royal College of Veterinary Surgeons :—Mr. W. Pallin, Mr. A. W. Reid.

ARTHUR W. HILL, *Secretary.*

List of names to be removed from the register through non-compliance with Section 5, Sub-section 4, of the Veterinary Surgeons Act, 1881 :—

Adams, J. P., Swainshill, Herefordshire.
Bales, James, Otley, Yorkshire.
Bulman, Robert, Morpeth, Northumberland.
Cannon, G. T., Bicester, Oxon.
Carter, J. T. P., Park Lodge, Lee, Kent.
Clarke, Hugh, Brookland Villa, Marsland Road, Brooklands, Kent.
Coleman, Fredk., 127, High Road, Kilburn.
Davidson, John, Longton, Staffordshire.
Dwyer, Edmund Phillip, 8, St. John's Gardens, Haverstock Hill, N.W.
Fairbairn, Wm., 129, Rose Street, Edinburgh.
Fern, Edward, Macclesfield, Cheshire.
Fletcher, John Edward, Ardrossan, Ayrshire.
Farrington, John F., Clare Terrace, Harold's Cross, Dublin.
Foulkes, Thos. J., Edinburgh.
Gatward, M. W., Sanger's Circus, Hall-by-the-Sea, Margate.
Herron, Gavin, A., 58, Hungerford Road, Holloway, N.
Hodgins, W. T. G., Camberley, Surrey.
Home, James, 7, Marchmount Street, Edinburgh.
Howell, Herbert, Aberdeen Terrace, Clifton.
Kirke, F. Armstrong, Grimsby, Lincolnshire.
Low, Peter, Perth.
Mills, James, Queen Street, Hitchin, Herts
Newbury, Thomas S., Tavistock Hotel, Devonport.
Ramsey, T. Kellett, Dublin, Ireland.
Reid, Alexander, Magheramorne, Co. Antrim.
Scott, William, Clonmel, Co. Tipperary.
Stewart, Daniel, Halifax, Yorkshire.
Sugden, Hon. H. F., 1, Crewkerne Villas, Fairfield Road, Upper Edmonton.
Taylor, H. P., St. Helens, Lancashire.
Towers, J. A. R., Dublin.
Williamson, C. E., Bath Street, Burslem, Staffordshire.
Wilson, Robert, Castle Place, Maison Dieu Road, Dover.
Yates, Robert, 16, London Road, Glasgow.

Marked thus * passed with 2nd class honours.
„ † „ 1st „ „

ROYAL VETERINARY COLLEGE, LONDON.

Inauguration of the Winter Session, 1896—97.

(*Continued from page* 424.)

In regard to botany, I must confess to having held, a few years back, the hope of knowing something of botany—structural, functional, and systematic—from the bulrushes which hid Moses for a time to the willows by the brook, but the immensity of the task, not to speak of its seeming lack of utility, caused me to resign my efforts to become a veterinary botanist in favour of another and less arduous pursuit. What can be said for the retention of botany in the examination schedule? Should not the twenty or more poisonous plants be given wholly to toxicology? The fodder plants belong to hygiene, which takes cognisance of their feeding values. The medicinal plants form a considerable part of materia medica, and the fungi and algæ of importance to us, belong to bacteriology. Excluding these groups many hundreds of British species will be left, besides plant structure, physiology, and classification. But, to the ordinary veterinary surgeon, what is the purport of the structure of tree trunks, the vagaries of roots, or the variations of leaves? What can it matter to him that the fruit of the apple tree is a pseudocarp, or that the placentation of the primrose is free-central. Yet, as some persons plead, botany is a splendid mental drill, and it teaches the students to observe. Let both be granted. Does not the schedule contain other subjects of even greater usefulness; subjects that furnish not only exercise in observation but information, which the student must retain? Has anatomy lost its purpose? Has physiology no secrets? Has pathology no mysteries to solve? Would not observation give better results if cultivated a little more in the dissecting-room, *post-mortem* house, the loose box, and in watching lameness? If there is so much to learn and so little time to learn it, why trifle by the way to study flowers? Why not begin at the outset to concentrate observation upon the things that must be observed, and observed accurately if we would succeed in practice?

During your college career you will have opportunities of gaining distinction. Certificates of merit, medals, and class prizes for industry, proficiency, and good conduct will be awarded to deserving students. There are four "centenary prizes" of the value of £20 each. These will be awarded to the most efficient student in each of the four classes. It is now possible for brilliant students to win back in prizes the whole of their college fees. There is also the competition for the valuable prizes given annually by Sir Frederick Fitzwygram—a real friend—whose munificent encouragement of veterinary students must have cost him thousands of pounds.

Having satisfied the examiners and obtained the diploma of the Royal College of Veterinary Surgeon, your licensed responsibilities will begin. You may enter the Army Veterinary Department, which offers an appointment well worth attention. The terms are good, and in no other sphere of professional usefulness will you be sure of a better pension. You may elect to devote your accomplishments to hygiene and meat inspection—a department of great and growing importance. In this work you will probably meet with medical men who still hold hazy views of the veterinary surgeon's education. You must enlighten them, and you need not fear the encounter. The instruction you will receive here on pathology, bacteriology, and meat inspection will enable you to hold your own.

You may go to the colonies, where appointments wait the coming of the right men. Canada, the Australian colonies, New Zealand, India, the South African provinces, and the United States offer, and will continue to offer, excellent reward for genuine veterinary skill. Your diploma, like a

note of the Bank of England, will carry its face value wherever you may go. But you may remain at home and cast your die in town or country, where you will be sure of a competence if not a fortune. Town practitioners everywhere seem always busy. Country practitioners, hale and hearty as of yore, show no sign of the rust of idleness. They still take an interest in the lands and buildings adjoining their dwellings, but whether as proprietors or intending purchasers I cannot say. You will look in vain among veterinary practitioners for that anxiety of countenance which generally comes with the struggle for existence. Few men become bow-legged through weight of wealth, and if veterinary surgeons must be claimed for the light-pursed or straight-legged variety, it is mainly owing to their adoption of a custom which may be described as vicarious posesssion. Genuine wealth of any kind—material, mental, or manual, is seldom ostentatious, but false poverty is often clamant. A bankrupt veterinary surgeon is a rare sight, and the bankruptcy returns for 1895 give no promise of its greater frequency. But go where you may, in any capacity, you will find competition, which is a good thing for good men. Do not be discouraged by the literature of prediction. In every walk of life you will meet persons who prefer the black keys of the piano—men who would buy their coal in bags could they be sure of the date of the Millenium. Already our pessimist friends have seen the signal. With a previson worthy of Balaam's ass they see disaster to our calling in the approaching autocar. The fate of the veterinary profession has been sounded. It is to sink with depressed agriculture. Could a better companion be found? Agriculture, the backbone of England, somewhat ankylosed, perhaps, but still the backbone, only made stiffer by foreign competition. Think of the splendid success of the annual exhibitions of the Royal Agricultural Society, of the many County Societies of England, Scotland, and Ireland, and of the Smithfield, Dairy, and other Shows held in the Agricultural Hall. In face of the continued prosperity of these exhibitions, where is the danger to veterinary practice? Wheat has fallen in price, yet the area of wheat-growing land has considerably increased of late. Harvest thanksgiving services continue in spite of low prices and the absence, after a poor crop, and the too conscientious Scotch farmer who "dinna care aboot approachin' his Maker in a spirit o' sarcasm." The suppression of pleuro-pneumonia and other contagious maladies in home stock, and the restrictions upon importation of cattle from infected countries, have imparted confidence to the farmer. More attention is now given to breeding all classes of farm animals, and veterinary surgeons will have little to fear from the fall in wheat while cattle, sheep, and horses maintain their present values.

But I would not have you believe that success will come without effort. You must not imitate Quashie, who lay under the flapdoodle tree waiting idly for the flapdoodle fruit to ripen and fall into his mouth. You must work. Disease, accident, and sudden death will have to be investigated and satisfactorily explained. Many of your patients will tax all your skill. Never pronounce a case hopeless until you are sure that it is hopeless. Don't anticipate death, wait till it comes. Don't give in at the first attempt to diagnose an obscure case. Go over the ground again, persevere, and keep your own counsel. The man who once masters the art of keeping his mouth shut when he has nothing to say will always command respect. Remember that one success will not serve a lifetime. Clients are inconstant, and practice varies. Sooner or later, in transactions—horse and other—you will meet with men whose word is as good as their bond. Prefer the bond, it is safer. You will have various clients, good, bad, and extraordinary; some easy and affable, others awkward and difficult, and a few obstinate. Here tact should serve you well. You will be asked questions which no man may answer,—as Why should my horse fall lame? Do not dissimulate; out with the truth, it

lasts longest. Try to combine judgment with your technical knowledge. Do not dissuade a client from buying every unsound horse; nor too confidently recommend every sound one. Either may be useful, or both may be worthless. You will have temptations many and various, "But where you feel your honour grip, let that aye be your border." Keep up with the times. Buy the latest books, and don't forget the weekly, monthly, and quarterly journals. Read through and round your science. Do not cling to old ideas that have been exploded, or to methods that have been superseded. But do not reject the old merely because it is old; retain the useful and the true. Know what has been done and what is doing in the profession; take an interest in its meetings, and its government, and do not grumble at reforms after they have passed. If promoted to the Council of the Royal College of Veterinary Surgeons, take the Epistle of James as a rule of conduct, and think long and earnestly of the needs of your comrades before you attempt to legislate for them. Raise the popular taste if you can, but do not give way to low opinion. Try to fulfil your own ideal in a profession for which there is a great future. Be assured that veterinary science has not yet reached its pinnacle; the public have not yet measured its usefulness or its power of doing good, and everyone of you may help its upward progress. The faithful, assiduous, and efficient practitioner will surely find his reward; if not in riches or material prosperity, it will come in the acquisition of learning, the consciousness of good work well performed, and in the final approbation and "well done" of the Great Master. Know your duty, do it manfully, and keep your reputation "unspotted from the world."

Lord CREWE, who had entered the meeting and taken the Chair during the course of Professor Macqueen's address, said:—

Gentlemen: In rising to ask you to accord a vote of thanks to Professor Macqueen for his address, it is only becoming first of all I should apologise to you for my late arrival, due in part to the peculiarities of the railway service, and in part also to the existing dispute between the railway companies and the cab-drivers—a dispute as to the merits of which wild horses would not drag from me an expression of opinion.

I regret, on my own account, that I should have missed any part of the most interesting and instructive address to which we have just listened, combining, as it did, the most serious and sound advice with a wealth of humourous comment which I could not but greatly admire. Well, gentlemen, I hold myself fortunate in having been called upon to take the Chair to-day, at the close of a year which has been a successful one for this College, and about which I fancy there is nothing to be said that is not pleasant. It has been, as I understand, an interesting year, as the first during which the results of two changes, to which Professor Macqueen alluded, began to be appreciated. I mean that of the raising of the standard of your preliminary examination, and the increase in the term of studentship by one year. As Professor Macqueen has said, considerable fears were entertained at the time those changes were made that the result might be that good men would be prevented from coming forward, and that the supply of veterinary surgeons would begin to run rather short. Well, it is very gratifying to find that these fears have proved to be altogether unfounded. And it is, of course, an obvious thing that the extra period of study here, which I for one fervently trust may be maintained, must be of great advantage, as giving a longer time to the students to engage in the vast amount of practical observation which can be found here, and which they can never find again to the same extent at any other period of their lives.

Now, Professor Macqueen alluded towards the close of his speech to what I believe to be a distinct fact, viz., the public misapprehension which certainly exists in some quarters as to the amount of study and the amount of science

which are required by those who undertake the profession of veterinary medicine. It is, I believe supposed by a good many people that much less science is required in your profession than in that which is generally known as the medical professiou. Well, gentlemen, we know better. We know that all the early years of study of a veterinary surgeon are not on parallel lines with those of a medical man, but are absolutely upon identical lines, and it is only later on, when it comes to the actual practice of the profession, that these lines begin in some degree to diverge. It is somewhat unfortunate that in the practice of your profession you are often not permitted to deal with the most interesting cases such as a medical man may deal with. Long, complicated, difficult, and chronic cases are very often not left to you to deal with, excopt in the case of valuable thoroughbred horses, valuable pedigree cattle, and the pets of fond and wealthy old ladies, for in such cases it is very often found that a dose of poison or a charge of shot is after all the simplest way of closing the disease and the life of the poor patient. At present at any rate prejudice prevents the application of such strong remedies to the incurables of the human race. In this way, therefore, you are deprived of these interesting and complicated cases which are the principal delight of the scientific mind. The result of that state of things is somewhat singular. You probably have, owing to the greater number of *post-mortems* which you make, and to the fact that animals are often killed at the height of a disease, considerably greater opportunities of acquiring skill for dealing with these very complicated and difficult cases, and yet you are not allowed to deal with them.

Now, gentlemen, Professor Macqueen said towards the close of his address something of the relationship of your profession to agriculture, and, as belonging to the distressed class of agriculturists, I listened with very great interest to what he said on the subject. You have performed in your profession, and you may still perform in your profession, a great work in dealing with those epidemics which ravage our live stock. Sir Joseph Lister, in his most interesting address at Liverpool the other day, spoke with approval of the use of tuberculin, which, although it has not carried out what was expected of it in the human race, has proved of great value in the diagnosis of tuberculosis in cattle. And we must also not forget the use of mallein, which has proved of such value in the diagnosis of that most terrible of all diseases—glanders, which we hope may in due time be stamped out altogether.

But there are one or two other matters in connection with agriculture in which you still, I think, have a great deal of work before you in helping distressed agriculturists. The first of these that occurs to me is abortion. We are always being told the one hope for the British farmer is to improve the quality of his stock, and it stands to reason that as the quality goes on improving so the loss—the great loss—which the farmers suffer through cases of abortion becomes more and more severe as the value of each individual animal increases, and I should be sincerely glad to think that the attention of your profession is being closely directed to the prevention of that most vexatious disease to the farmer.

And the other point which occurs to me in a special degree has reference to swine-fever. When I was in Ireland we adopted there the procedure which had previously been adopted by the Board of Agriculture in England, and I remember very well that in Dublin Castle there hung a map which was stuck over with flags at the points at which swine-fever had taken place. I am sorry to say that in many parts of Ireland there was more flag than map, and the amount which had to be paid in compensation reached a most alarming figure. So far as I know, speaking as something of an ignoramus on the subject, very little has been done as yet to cope with this most vexatious disease. Farmers

large and small in England depend, and I think will have to depend, a good deal on pigs for the function which that animal has so long fulfilled in Ireland—that of paying the rent. I remember being told of a village wife who at brief intervals of time lost a pig and also a near relative. I place them in this order for reasons which you will apprehend in a moment. Her neighbours observed with some regret that she seemed to feel the loss of the pig a good deal more than the loss of the relative, until she at length gave her reasons for so doing, which were that she obtained some consolation from the loss of her relative from the feeling that the relative had gone to a better world, while the pig from every point of view was "nothing but a dead loss." That evidently was before the days of compensation. But if the united genius of the veterinary profession could find some means of preventing the spread of this disease, you would earn the gratitude of a great many humble homes both in England and Ireland.

Well, gentlemen, it only remains for me to congratulate those of you who are going to belong to a profession which I think is both an interesting and an honourable one. As Professor Macqueen said, the prizes of it are not of a dazzling character, but he pointed out, as I think, with great force and wit, what the substantial advantages of it are. It is an interesting profession, I think, because most men—most Englishmen, at any rate—find particular interest and pleasure in dealing with animals, and in endeavouring to understand their different characters and their different habits. And it is also a noble profession because it deals with the alleviation and diminution of pain.

I wish, finally, to congratulate those who have been fortunate enough to win prizes and distinctions during the past year. I sincerely hope that with them, as with all students here, the distinctions they have gained will be the beginning of a long, successful, and happy career. In conclusion, I have to move that the best thanks of this meeting be given to Professor Macqueen for his address.

The CHAIRMAN, rising again, said: I will now call upon the Principal to read out the prize list.

Professor MCFADYEAN, the Principal of the College, thereupon read out the list of prize winners for the previous session (which appears elsewhere).

Proceeding, the Principal said: That, my lord, is the complete list of the strictly college prizes. But there is another competition which I think I may describe as an inter-collegiate one, namely, that for the three FitzWygram prizes to which Professor Macqueen referred. In that competition only two students are allowed to compete from each school, and I am proud to say that on the occasion of the most recent competition, viz., in August last, the two gentlemen who were selected to represent this Institution brought back the first and second prizes. Those two gentlemen were Mr. Verney, who obtained the first prize of £50, and Mr. Browning, who obtained the second prize of £30. Curiously enough, none of the other candidates obtained sufficient marks to carry off the third prize, and it is a special matter of regret to us that we are not allowed to send more than two candidates, because we felt that we had at least half-a-dozen more students good enough to take the third prize.

Sir NIGEL KINGSCOTE, who was warmly greeted, said: Gentlemen, I am sure none of us would wish to leave this lecture hall to-day without returning our most hearty thanks to Lord Crewe for coming here and presiding over our gathering. I am well aware myself that Lord Crewe has come at very great inconvenience to himself, and I know that if he had been considering only his own pleasure he could soon have spent the day on Newmarket Heath. But I think one and all of us may think ourselves fortunate

when we see a man like Lord Crewe taking an interest in all that concerns our Institution. I may say that Lord Crewe is not a mere figure head, for he is a practical man. He spent a year at the Royal Agricultural College, and he there took a peculiar interest in the veterinary department of the college. What Professor Macqueen and Lord Crewe have said to-day I entirely endorse. I hope that the veterinary profession in this country is now taking the place it ought to take. I am afraid there was a time when it was not thought much of. It is thought a great deal more of now, and I trust it always will be. There is just one thing more I should like to say. Somehow or other, although agricultural interests are at such a low ebb, there are still some signs of prosperity in the country. I see in the papers that £5000 has been giving for a yearling colt. That shows that there is still enterprise in that direction. You, gentlemen, might be called in to give your opinion in such a case as that, in the event of anything being amiss with the yearling, and I can only say that I do not envy the feelings of the man who has to take the responsibility of deciding in such a case. I think that as long as we have animals of that value the veterinary profession will hold its own and flourish. Gentlemen, I must apologise for having gone a little outside the limits of the duty I rose to discharge, which is to move a vote of thanks to Lord Crewe for coming here to-day.

The vote was carried with acclamation.

Lord CREWE, who was again cordially cheered in acknowledging the compliment, said: Gentlemen, it only remains for me to thank you in a very few words for the kind way in which you have received the far too kind things which Sir Nigel Kingscote was good enough to say to you of myself. I can assure you that nothing elsewhere would have induced me to break the engagement to come here to-day, which I entered into a long time ago, and for which I have been fully rewarded by the kind reception you have given me on this occasion. Sir Nigel told you that I went through a short course of veterinary studies a few years ago at the Royal Agricultural College. I hasten to reassure everybody here, by stating that I am not now prepared to give any advice on that subject, either gratuitously or otherwise. I content myself by doing what Professor Macqueen advised us all to do, viz., to say nothing when we have not a very valuable opinion to offer. Consequently I confine myself to a dispassionate criticism of the treatment adopted by veterinary surgeons, when my own horses fall lame, I am sorry to say that they frequently seem to be lame. But speaking for myself, it has been a great pleasure to me as an amateur to have acquired even a little knowledge on the subject during the short time I spent at Cirencester. I thank you very heartily, gentlemen, for your kindness.

The proceedings then came to an end, and the general company adjourned to one of the class-rooms in which refreshments were served.

ROYAL VETERINARY COLLEGE VETERINARY MEDICAL ASSOCIATION.

THE 232nd general meeting of the Society was held in the New Theatre of the College, on Friday, November 20th, at 6.30 p.m. Mr. Stephens was in the chair. There were present Mr. Berry, M.R.C.V.S., and 76 members.

Mr. HARBER read a paper on "Shoeing." A discussion ensued, which was opened by Mr. Perry, and the following gentlemen took part in it:—Messrs. Berry, Wood, Hall, Hudson, Kitchin, Watt, Amos, Young, Mulvey, Goodall, Bell, Miller, and Chellew.

Votes of thanks to the Essayist and Chairman terminated the proceedings.

F. CROWHURST, *Assist. Sec.*

GLASGOW VETERINARY COLLEGE.

(*Continued from page* 427.)

Koch.

From Pasteur we move onwards to the work of Professor Koch, who, whilst a country practitioner in a small village in Germany, studied many subjects connected with your own special branch and performed many experiments upon the lower animals, there laying the foundation of a great many of the investigations which afterwards made his laboratory at Berlin famous. Many of you will remember the commotion which was excited in this country upon the news reaching us here that Koch had secured a perfect antidote against all forms of tuberculosis by the simple hypodermic injections of a fluid which he called tuberculin. Though the first hopes of tuberculin were sadly dashed, yet we must not forget the fact that Koch set agoing a new thought in scientific medicine, and he began a new era which, even in this short space of time, has been productive of the greatest good in other diseases—such as diphtheria and tetanus. Now, if you will please pardon me taking up your time, I would like to tell you that tuberculin is what we call a toxin, and is secured by making a special broth or nutrient fluid which Koch found should contain a certain amount of glycerine. This broth or nutrient fluid must, of course, be thoroughly aseptic—that is, it must not contain germs of any kind, nor must they have access to it. Into this specially prepared nutrient fluid is put a certain quantity of pure cultivations of the tubercle bacilli, which are specially cultivated. These are allowed to stand at a given temperature, and for a specified time. This specially prepared broth, wherein the bacillus tuberculosis has been growing for the stated period, is now carefully filtered through a porcelain filter, so that no bacilli are allowed to pass through, and the fluid thus filtered is what Koch called tuberculin. You will now see the relationship in the methods of production—of alcohol, the product of yeast and sugar; and tuberculin, the product of the tubercle bacillus and the prepared broth. Now, what I wish to tell you is, that all bacilli, when fed upon food suited to their growth and development produce a product which we call the toxin, which, when absorbed into the circulation, produces the increase in temperature, or fever. It may interest you to know how a horse is immunised; and perhaps I could not do better than describe to you what I learned and witnessed during a visit last year, in company with Dr. Roux, to Garches farm, near Paris, where horses are immunised for the purpose of securing diphtheritic anti-toxin. A toxin is prepared from the bacillus diphtheria much on the same lines as I have just described to you as necessary for the production of Koch's tuberculin. About 1 c.c. of the toxin is injected into the shoulder of the animal, and this amount is gradually increased each injection. The horse is injected three times a week for three weeks, and then he is allowed to stand for a period of two or three months. Dr. Roux mentioned that at the end of the three weeks the blood might be drawn from the horse and the serum be found perfectly active. Some mild antiseptic is generally added to the serum before it is bottled. In that institution they had 80 horses immunised on the day of my visit, and after a short inspection of a number of them, I passed into the inner room to witness the operation of bleeding the horses. A horse is led into the operating room, and a twitch is applied to its upper lip, which precaution is only adopted in order to keep the horse steady while the incision is being made and the trocar and canula inserted. The position selected for inserting the trocar and canula is at the most superficial part of the jugular vein, and is carefully cleansed with a solution of bichloride of mercury. The veterinary surgeon then makes a small incision through the skin, about a half to three-quarters of an inch in length,

in the longitudinal axis of the vein, and through this he passes the trocar and canula, thoroughly sterilised and taken from a large test tube, is used fresh for each horse, and this being passed into the jugular vein, a rubber tube—which is used in common for all the horses—is passed over the head of the canula. This rubber tube has, at the other end of it, a long nozzle of what appeared to be celluloid, and this was passed through a hole in the sterilised tin cover, and forcibly pushed through the sterilised paper cover of the glass vessel into which the blood flowed. Each glass vessel, when filled, would contain about six litres, but in every case operated upon whilst I was present, one of these vessels, and about the half of another, were filled with blood, making a total of about nine or ten litres from each horse. It may be mentioned that whenever the trocar and canula were passed into the jugular vein the twitch was removed from the horse's lip, and he was then given some turnips and carrots to eat whilst the blood was being withdrawn. When the desired amount of blood was extracted, the canula was taken away, and over the small wound one of the assistants placed a pledget of cotton soaked in a solution of bichloride of mercury and covered with guttapercha tissue, while the whole was held in position by strips of adhesive rubber plaster, and the horse was then led away to his stall. The animals did not seem to be affected in the slightest degree by the loss of so much blood, for they seemed quite as spirited and active in their movements after the operation as before. On inquiring of the veterinary surgeon whether he ever had had a case showing evidences of weakness afterwards, he assured me that he had never seen anything approaching to it, even in cases where he had extracted as many as 15 litres. Those desirous of possessing a fuller description of that visit to Garches may have a copy of a little pamphlet here which was communicated to the Glasgow Medico-Chirurgical Society in May of last year.

Glasgow Experiments.

I daresay a number of you will be anxious to hear something of the experiments which Dr. McCall and I carried through in this college, using a very virulent toxin prepared from a streptococcus, and after carefully watching the temperatures of the animals beforehand, we used hypodermic injections of this toxin. These injections, as you are aware, are practically painless, and though they cannot be carried by anyone without the necessary Government authority, yet we may safely assert that to witness them would not hurt the feelings of the most sensitive person or the most virulent anti-vivisectionist. The object of our experiment was to see if we could secure a serum which would be directly antagonistic to tuberculosis, and though that which we were aiming at was not a success, yet I am safe in saying, I think, that both Dr. McCall and I gained a great deal of knowledge by our failure. Just as Pasteur had fonnd that different diseases must be differently dealt with, so also dld we find that the toxin from a bacillus with a different life history from that of the diphtheria bacillus would not immunise an animal on the same lines as that adopted for the production of the diphtheria antitoxin. You will see from this statement that our labours were not altogether in vain. I have already used the expression antagonistic, and perhaps it is necessary that I should explain to you what I mean by such, and I think I could not do better than describe to you the difference between a progressive disease such as glanders or tuberculosis, and on the other hand a zymotic disease such as a contagious fever, which in many cases, even without treatment, runs a course and subsides should the patient have sufficient vitality to resist the disease. I take the yeast and sugar fermentation process as my type of the manner in which the zymotic diseases (or contagious fevers) run their course, because in them we find that the product of the bacillus accumulating in the body may destroy the bacillus itself. The fact of suitable and sufficient nutriment must

not be lost sight of in dealing with the infection of a living body, or the severity by which disease germs may attack different individuals, because what we understand by resistance may simply mean no nutriment of a suitable nature—that is, the body may prove an unsuitable soil for the growth and development of the disease-producing microbe. Koch found that, in preparing a nutrient fluid for the successful propagation of pure cultivations of the tubercle bacillus, a certain quantity of glycerine was necessary, and it has been my experience in the treatment of tuberculous disease to observe that glycerine, when administered to the patient, has always been attended by unfavourable symptoms, and it is a question for physiological research—Does the glycerine enter the system in an unchanged condition? It is my belief that the life of the bacillus of tuberculosis or glanders is not detrimentally affected by its own product, but rather, I would say, that the product favours the more active growth and greater development of its own bacillus, and that this may explain in a great measure the increase in temperature observed after an injection of tuberculin or mallein into an animal affected with tuberculosis or glanders. If, as I have already tried to prove to you, tuberculin is not injurious to the bacillus of tuberculosis, it may be readily understood that the slightest addition of such material hypodermically injected into the body of an animal affected with tuberculosis cannot be productive of good to that animal, but must be considered as only adding "fuel to the fire." It was this thought which prompted me to apply to Principal McCall for his aid to carry out a series of experiments in order that if possible we might secure a serum, the action of which would be directly antithetic to that of tuberculin in tuberculosis. I am afraid that time will not permit me to enter more deeply into the subject of "antagonistic" serums and their action in progressive diseases, but from the little which I have said it may be more easily understood the reason of Koch's failure in curing tuberculosis by the injection of tuberculin, whilst Behring, of Berlin, and Roux, of Paris, succeeded in curing many cases of diphtheria with diphtheritic antitoxin, seeing that the life-history of the bacilli of the two diseases is so perfectly different, the one apparently being able to live in any percentage of its own product whilst the other cannot. Whether serums may be secured in the future, capable of affecting the different diseases as much as diphtheric antitoxin interferes with the development of diphtheria. I am not in a position to say, but I am sanguine that good must result fram the labours of so many ardent workers in this important field of investigation.

Antiseptics.

Professor Lister, in his able address, acknowledges his return to his first love—carbolic acid—as an antiseptic. Perhaps we have not given sufficient attention in the last few years to chemical bactericides so much as we should, for, curiously, investigations are like fashions—they run their course. Carbolic acid as an all-round antiseptic for ordinary surgical dressings may not be surpassed, but there is no questioning the fact that what will destroy one kind of bacillus will not so easilly destroy another. To those who are leaving this institution to-day, I might mention the results of a few experiments which have been carried through by me, and which may be of use to you in the future. In anthrax it was found there was no application so destructive to the bacillus, when locally applied, as a solution of bichloride of mercury, and if by chance you meet with a localised manifestation of this disease in your practice, you will find the solution of this salt, when accompanied by pressure through the medium of bandaging, to be most efficacious. I am aware that the practice is to destroy the animal so affected, but a case may come before you in which it may be desirable to save it, and thus you may have an opportunity of testing the efficacy of such treatment. When the disease is internal, as observed in wool-sorter's disease, I am unable to give you any information

regarding its action, as I have never had any cases under my care; but on the other hand, those with the external manifestations which have come before me have rapidly improved. In tuberculosis my experiments so far have shown me that fluorine, pure or in combination, is the most actively destructive agent against the bacillus tuberculosis; and whilst I have had very good results in some forms of tuberculosis with this substance, yet I have not been able to give it in a suitable form necessary to the requirements of all the different organs affected. I might mention to you that bichloride of mercury solution is an active bactericide against pure cultivations of the bacillus tuberculosis, yet it is practically of no use when they are in a fluid containing albumen such as sputum. Carbolic acid under such circumstances comes into the front rank as an active bactericide. Iodine I have found to be a most deadly bacillicide against the bacillus urinæ. It is most remarkable how small a quantity of the tincture of iodine, and with what suddenness it will destroy every bacillus in a large quantity of urine. I have often wondered whether the pathology of polyuria (a disease, I understand, often observed in the horse), and the successful treatment of the disease by iodine, would corroborate the proof of such an experiment. Actinomycosis is another disease the bacillus of which is very sensitive to the action of iodine. Those of you who may have experience of actinomycosis in the future might try the effect of iodine, both internally and externally.

Veterinary Position.

The position of the veterinary surgeon is becoming of more importance every year, and it depends very much upon your own exertions whether you shall advance your profession by your own works or not: for, no doubt, it is owing to such men as your worthy Principal that veterinary medicine has been raised to the position it now holds in Glasgow, and I have no doubt the same is true of other good men in other places. Veterinary surgeons have many facilities for testing the action of drugs on the lower animals, and I think in the future more might be done and be productive of many brilliant results. In the domain of Hygiene you will also be expected to take your share in the furtherance of the good work which has been done within the last few years in this branch of medicide. Your profession is peculiarly adapted to aid in many ways those researches to which able men are now devoting so much time. Perhaps this is all the more true when we direct our thoughts to that of tuberculous disease in cows; and, indeed, the same may be said to be true of every contagious disease which is communicable from the lower animals to man. The important services now rendered to the community by the meat inspector are no doubt ably executed, but I have always been under the impression that such a post should be filled by a thoroughly competent veterinary surgeon, or, at least, it should be under the supervision of one. It is not only in the inspection of meat we should have the co-operation and supervision of the veterinary surgeon, for, when we turn our attention to the subject of milk, which plays such an important part in the feeding of infants, in cities, especially, does it not strike even the lay mind what a great necessity there is for stricter inspection being made of all cows which supply that nutrient and necessary fluid? By the very simple test—injection of tuberculin—it is now possible always to detect a cow contaminated with tuberculosis, and this, too, long before there is the chance of direct contamination of the milk from tubercular ulcers, which are often observed on the teats in such cases. I might go on enumerating examples wherein you may be of the greatest use in protecting the health of the community, and I trust the proper authorities will not be long in recognising the importance of such possible good by the appointment of proper veterinary inspectors, who shall have

power to order the slaughter of all infected cows, and thus remove one of the greatest causes of tubercular infection to the human race.

To those students who are entering upon their course of study, I would advise them to listen attentively and digest faithfully the teachings of their professors. There is a time when we can imbibe new thoughts, and there is a time later on when it is necessary to draw upon that store we have laid in, and to those who gather well I can assure them they will gain an abundant reward. To those students who are now leaving college and about to enter upon the practice of veterinary medicine, I would remind them that it is a profession in which they cannot stand still—they must either progress or retrogress—and the only way by which they can prevent themselves from falling behind is by reading, by studying, and by careful observation. Allow nothing too small to escape your mind's eye: take up every detail and satisfy yourself regarding it before you pass it on, remembering always that the beginning of disease is very small—a bacilius is not a large object, and may be easily overlooked, even under a powerful microscope.

THE examinations of the Royal College of Veterinary Surgeons took place on Friday, 18th, and Wednesday, 23rd December. The following student passed the A or first professional examination:—Mr. Charles Bell, Omagh, Co. Tyrone.

The following students passed the B or second professional examination:—John M'Leod, Brisbane, Queensland, honours; R. Spittal, Glasgow; D. Forwell, Gourock; J. Murphy, Glasgow, honours; R. Porteous, Ayr, honours; J. P. Small, Kilkeel, Co. Down; W. W. Lang, Kilmarnock, honours; A. K. Murray, Milliken Park, honours.

The following students passed the C or third professional examination, theoretical portion (three years' course):—Hugh Ferrier, Bathgate; Henry G. Simpson, Windsor, honours; George Thompson, Rushyford, Durham; M. T. Giblin, Glasgow; Hugh M'Vean, Duntocher.

The following students passed the C or third professional examination (four years' course):—W. Crawford, Beith; A. Fraser, Largs; J. Crawford, Beith.

The following students passed the second (or practical) part of the final examination, and received the diplomas of the Royal College of Veterinary Surgeons:—H. G. Simpson, Windsor, honours; Hugh Ferrier, Bathgate; George Thompson, Rushyford, Durham; Hugh M'Vean, Duntocher; William M'Kenzie, Market Drayton; William Blane, Belturbet, Co. Cavan; A. S. Brooksbanks, Govan.

GLASGOW VETERINARY COLLEGE MEDICAL ASSOCIATION.

AT a meeting of the members of this Society, convened within the theatre of the College, Principal M'Call in the Chair, the following gentlemen were awarded the Honorary and Fellowship Diplomas of the Society:—Messrs. H. G. Simpson, Windsor; Hugh Ferrier, Bathgate; George Thompson, Rushyford, Durham; Hugh M'Vean, Duntocher; William M'Kenzie, Market Drayton; William Blane, Belturbet, Cavan; A. S. Brooksbanks, Govan.

LINCOLNSHIRE VETERINARY MEDICAL ASSOCIATION.

A MEETING was held at the Albion Hotel, Lincoln, on Thursday, November 12th, 1896. The President (Mr. H. Howse, Lincoln) being absent through illness, the chair was taken by Mr. T. A. Rudkin, Grantham, vice-president; and there were also present Captain Russell, Grantham; Messrs. W. H. Brooks, Leadenham; B. Freer, Uppingham; J. Mackinder and J. A. Robinson, hon. sec., Peterboro'; C. Hartley and C. Seeley, Lincoln; W. G. B. Dickinson, Boston; F. A. Holmes, Hemswell; Jas. Smith, Huntingdon; T.

E. Smith, Market Rasen; F. W. Wragg, London; H. Bentley Eve, Caistor; J. E. Porter Smith, Mareham-le-Fen.

The minutes of the last meeting having been taken as read, the SECRETARY read letters of apology for non-attendance from Dr. Fleming, Professors Pritchard, Penberthy, Williams, and W. O. Williams, and Messrs. Kidd, Weston, Gooch, and E. J. Richardson. The President wrote regretting his inability to take the chair, as he was confined to his room by an attack of bronchitis, and wishing the members present a very successful meeting.

On the motion of Captain RUSSELL, seconded by Mr. WRAGG, the Secretary was directed to send a letter of condolence to Mr. Howse, regretting his absence and wishing him a speedy restoration to health.

An Honorary Associate.

In accordance with notice given at the last meeting of the Association, Captain RUSSELL proposed the election of W. Hunting Esq., of London, as an Honorary Associate of the Lincolnshire V.M.A., and spoke in highest terms of praise of the services he had rendered both to the Lincolnshire Association and to the profession at large.

Mr. FREER seconded, endorsing the laudatory observations of Captain RUSSELL, and the resolution was carried with acclamation.

W. G. B. DICKINSON, ESQ., F.R.C.V.S., Boston, here read his paper on "Auto-intoxication in Animals."

Gentlemen,—The subject is not a new one to us as veterinarians in this country, but it has received greater attention than we have given it by our continental colleagues. I hope to give a rough outline on this subject in a short paper which I trust will be the stepping-stone to further enquires and lengthy investigations with us as a profession generally. The putrefactive processes in the intestinal tract and the manufacture of poisonous substances play such an important part in disease, and as yet have been so scantily contributed to in veterinary literature that an enquiry into the action of these morbific products is very much called for.

The introduction of poisons from without or generated within the body of animals plays a most important part in disease. Death is known to carry off animals in a few hours most unexpectedly where *post-mortem* examinations absolutely fail to enable us to arrive at the true cause of this sudden collapse. We assign what we suppose to be the cause, probably under the term "syncope," or other conclusions at which we may arrive, when probably no such condition was the cause of the demise, which might be accounted for by the fact that the animal had partaken of food or fluid which produced poisoning and was the factor of death, without as it were being actually chemically or physiologically a poison before it entered into the animal economy.

Many are the continental writers who have demonstrated how *malaise* may depend upon deleterious chemical substances combining with products of the system to form chemical products which are equal to different bases—inorganic and vegetable. The Italian toxicologist Selmi called these ptomaines. These are formed by the action of bacteria upon organic matter. Bourchard confines himself rather to the general action of animal poisons than to a designation of them, and as Professor Thomas Oliver puts it "it is sufficient to state that all ptomaines are not poisonous." We know this, and are grateful for the knowledge that some are quite inert. Nitrogen being present in ptomaines gives a resemblance to vegetable alkaloids, which Brieger rightly calls toxins. Many at the same time are built up with oxygen. whilst in others oxygen is absent. The part bacteria take in the development of ptomaines which are attributable to the virulence of micro-organisms is forcibly shown in our patients in tetanus. Soil and its condition governing

the propagation and perfection of the growth of micro-organisms which accounts for the virulency of infection in tetanus and some other diseases. Temperature without and within the animal economy has much to do with the elaboration of disease germs, some of which require oxygen while others prosper without.

We see the two forms produced by the same poison but under different conditions. The one follows a wound, and the other appears, as it were, without any assignable cause; but we find the morbid products in both victims. The effect of some external conditions is well exemplified by the spread of influenza in mild, damp, foggy weather, and particularly in young horses that are stabled and kept warm after their sojourn in the open air from their birth, the development of influenza poison is manifest, whereas if these colts were left to the tender mercies of outside climate they would remain healthy. After being housed the temperature is favourable to the development of the poisonous organisms already in the system.

We all know that life, human and animal, is spent in building up and breaking down of molecules—Pasteur showed the important part which micro-organisms play in the production of disease; this is shown most distinctly in the intestinal tract. The vitality of our patients depends in a great measure on the metamorphoses which take place during digestion in the smaller intestines—changes chemical, fermentative, and putrefactive—during digestion. The absorbtion of alkaloids and ptomaines most seriously affect the well-being of the animal.

The antagonism of one specie of organism is protective against the activity of another, thus limiting the life of any particular sect of this order.

Animal life, whether the higher or the lower, is always in the midst of a multitude of dangers of being cut down by one or other poison within the system. This danger is minimised by the healthy activity of the organs of excretion—the kidneys. The liver scrutinising, as it were, the portal vein contents as they are sent from the alimentary canal.

The fermentative products in the food of horses causes many a death which we assign to the so-called colic, and is really due to auto-intoxication, and calls for some urgent application of an intestinal antiseptic. I have been able to overcome this condition by the introduction of beta-naphthol into the stomach by the mouth and the intestine direct. Lauder Brunton says it is poisonous and recommends salicylate of beta-naphthol. Of course all the phenols are antiseptic—more or less, within the intestine.

Our consideration in the study of this subject is perhaps chiefly called for in the conditions presented to us in those patients under our care suffering from intestinal and gastric derangements. Therefore let us briefly summarise the toxic effects of poisons contained in the intestinal tract, originating from putrefactive elementa—which are factors in the condition known as azoturia or in another's words "intoxication by all the poisons which are normally introduced into, or found in the organism," which are not eliminated by the kidneys and other organs. In the treatment of this condition we have employed many agents to accomplish the action of the eliminating organs, succeeding in so doing to an extent, but not generally getting quit of the toxicity which exists. We administer purgatives which remove from the blood water with which is a moiety of toxic material, dehydrating the blood and tissues, causing a diminution of the poison but not entirely eradicating it. We employ diuretics to stimulate the kidneys, which are generally active. I find the bromides and nitrates of sodium more beneficial than the potassium salts, the toxic inducing influences of the latter are well-known. The deleterious substances contained in the intestines favour an intoxication which is often seen in gastric and intestinal symptoms in the horse. The poisons which are generated from food in the intestines are many,

and all more or less tend to produce intoxication by their accumulation in the blood through the activity of fermentation in the tract of intestines producing marked changes which characterised themselves to us. Tympany for instance is almost constant in impaired gastric and bowel function. The evolution of gas signalises its presence by eructations or the escape of flatus. The odours of expelled gases suggest to us the presence of sulphuretted hydrogen and ammonias which are given off from putrefactive fermentation of substances within. The detection of these gases appears most distinctly after puncturing the abdominal viscera in cases of flatulent colic in the horse, and the urgency of this operation is indicated and warranted to us from the fact, patent to everyone who has seen it, of the immediate cessation of the threatening signs in our helpless patients.

Still, I must impress upon you other means of relief than the trochar and canula. When the stomach becomes distended there is no agent, so far as I have experienced, which is so rapid in its action as creasote administered in conjunction with ether, or the use of naphthol in doses of 25 to 30 grs. Creasote immediately destroys vegetable organisms, and quickly arrests fermentation, charcoal neutralises the products of putrefaction and causes gastric and intestinal antisepsis. Dilute hydrochloric acid is also valuable in this condition. Before resorting to puncture in intestinal tympany I place great reliance in the intravenous injection of eserine. I never use less than two grains, made in solution immediately before using it, by dissolving it in boiling water and adding a few grains of chloride of sodium. The solutions of eserine which are placed at our disposal are not reliable. Eserine in one or two grain quantities can be procured in hermetically sealed tubes. In a big cart horse I have given three grains, but find, as a rule, the smaller dose mentioned is sufficient.

Of course I do not wish to imply that there are any medicines which are specifics against intoxication, but looking upon the animal carrying within itself the causes of innumerable diseases there is, undoubtedly, a fostering condition in perverted nutrition. Animals are not only poisoned when they actually swallow a poison, but when they fall victims to certain diseases. Bourchard says: "When the poison is produced by some external cause, or when it is formed in the system by a perversion of nutritive functions, or by the secretions of a microbe, it must be considered as anomalous either as regards its nature or its quantity. But normal poisons exist.

Discussion.

Captain RUSSELL opened the debate, saying that he was sure they would all congratulate their friend, Mr. Dickinson, upon the able paper he had prepared and the peculiar scientific aspect which he had taken. These ptomaines and toxins and other putrefactive agents were, uo doubt, of very great importance, but they took a lot of pronouncing and required a considerable amount of recollecting. He was perfectly in accord with Mr. Dickenson in his remark that the death of many animals was due to self-poisoning. In many cases of animals where the bowels became distended with gases and they died, on making a *post-mortem* examination they had been at a loss to determine the cause of death. In all these cases of distention of the stomach he found dilute hydrochloric acid almost a specific. In distention of the bowels, carbolic acid or creosote had a good effect, but he should not be satisfied until they had actually punctured the stomach of the horse from outside. He was persuaded, from the many *post-mortems* they made where they found the true stomach distended almost to bursting, that if relief could have been given by puncture or by some chemical agent, those cases might have been saved.

Mr. J. MACKINDER asked if laminitis produced in animals through taking

wheat flour was not the effect of self-poisoning. In his district they grew a large quantity of potatoes, and they were often given to horses, who got tremendous distention of the stomach. Their worst cases of distention of the stomach and bowels arose from potatoes. They also got diarrhœa, and he asked would eserine be recommended then. He should very much like to have the stomach of the horse punctured, but he thought it was hardly possible to do it.

Mr. WRAGG said he should like to join Captain Russell in congratulating Mr. Dickinson on his able paper. He had heard it with a great deal of interest. He admitted these ptomaines and other similar poisons were a bit deep, especially to an old practitioner like himself. Mr. Dickinson spoke of tetanus as the result of a wound, and also of another form of tetanus, and he was not quite clear whether he meant to infer that tetanus sometimes took place without any wound. (Mr DICKINSON: Yes.) Mr. Wragg said his opinion was, the toxic poison entered by some wound or other. The organism of tetanus had been discovered and they knew it was due to a particular poison, and it was pretty conclusive to his mind that it was due to the poison being taken into some wound which they could not see or were unable to find. He remembered once attending a horse belonging to a doctor, and he complained of his treatment because he did not cover the wound up, and thought he had been using no antiseptic. He told him the lotion that had been applied was bichloride of mercury, and the doctor told him he was afraid of tetanus supervening, and instanced a case he had been attending in which a child had been cut and some of the people pulled down a cobweb and put round this child's finger and tetanus set in. He told the doctor that in that cobweb was the infection of tetanus, in the dirt and dust. In many cases of horses in dust yards that he attended, when a horses foot had been pricked by a nail, tetanus supervened. He thought, without doubt, that this organism of tetanus was in the dirt, and more particularly in the cinder dust. Mr. Dickinson went on to speak of tympanitis. In the cases of colic they got in London, it was very rare they had tympanitis. He did not remember any case in which tympanitie caused death. They did get it badly where there was a twist of the bowel, either large or small. He had never to puncture the abdominal cavity for tympanitis, and he should wait until he heard the result of Captain Russell puncturing the stomach before he tried that. He thought the existence of tympanitis of the stomach was doubtful, and he believed it was principally confined to the large intestines. It was true that in a *post-mortem* they saw tympanitis, but whether that occurred in life or after death was not easy to prove. When the National Veterinary Association met at Peterboro', he remembered Captain Smith introducing to the notice of the meeting his long enema tube. He had one of those tubes made and continued to use it with great success, and in all cases of colic his instructions were that the tube should be used. In these cases of colic, which is nearly always in the large bowel, the great aim was to produce action of the bowel, and they could reach the part by the aid of the long enema tube. It was a nasty job to do, but with a little patience and practice could be introduced about six feet. If they pumped a little warm water in and inflated the bowel, by a little manipulation they could easily get the tube forward. He found he had had in his infirmary 300 cases aud only five died, death resulting from twist, rupture, or calculi.

Mr. HARTLEY said he should like to add his thanks to Mr. Dickinson for the scientific paper he had given them in his endeavour to throw light on these mysterious ferments. In his practice he had given hypo-sulphate of soda. It was very cheap, and animals would drink it. He had also given a mixture of turpentine, ether and linseed oil, and he had given strychnine and belladonna. He had never given more than one grain of eserine, for fear of

rupture of the large intestines. He could assure Mr. Wragg that there was very little danger in puncturing the intestines of the horse. He had done so with no more untoward result than the formation of an abscess, which might be treated in the ordinary way. In the cow it was a very simple matter. They could puncture the cavities of the horse with impunity, although he sometimes thought they were not so courageous as they should be in these cases. As an antiseptic, he had had very good results with lysol; it was not so irritating as carbolic acid. He thought if they could teach the people something more about stable management, they would hear less about the development of these mysterious ferments.

Mr. WRAGG related a case of puncturing in hydro-thorax, in which a "practitioner" was also attending, and this practitioner said, "Why not tap his horse?" He replied, "Because it won't do any good, the animal is sure to die." The practitioner fetched out a cattle canula and trochar, and plunged it into the chest; and when he saw blood on it, he said he had got into the lungs, and after death there was the mark in the lung where it had gone.

Mr. HARTLEY said he always impressed it upon his pupils to keep away from the posterior margin of the rib. He cut in between the 10th and 11th rib, and from one animal he took away 39 gallons of fluid.

Mr. JAS. SMITH, who also thanked the essayist for his paper, said he understood him to say that the germs of influenza were present in these young horses when they came up, and were developed, as a rule, by the alteration of temperature when stabled. The difficulty he generally found when young horses were put into stables was catarrh, which was likely to extend to the lungs. He asked Mr. Dickenson whether he meant to refer to the epidemic influenza.

Mr. FREER said he must join the rest in thanking Mr. Dickinson for his paper. A great deal of it was beyond his comprehension, but the first thing that struck him with regard to the toxin of tetanus. There were idiopathic and traumatic tenanus, and it might be taken, in cases where they might look from head to foot and not find a wound, through hay and forage which had been on the earth and was often eaten by an animal with a wound in its mouth, or had taken it through other causes. As to gastro-intestinal derangement, he should like to have an opportunity of introducing the canula into the stomach of a horse which he knew was going to die. He had not tried beta-naphthol nor lysol, but he thought the best treatment was turpentine, and if it cost 5s. per ounce everybody would use it. His experience taught him that turpentine was the finest agent they could name for tympanitis or intestinal colic. He instanced a case of puerperal mania in the cow, which he treated, and the cow was all right, having suffered from poisoning from some agent. As to puncturing the abdomen, he had done so with only the formation of an abscess, as Mr. Hartley had said, and that could be avoided by acting on Mr. Jas. Simpson's advice in withdrawing the the trochar to be carefnl not to pull away the skin from the abdominal tissues and thus set up inflammatory action.

Mr. DICKINSON, in reply, thanked them for the kind expressions used. As to the cases of laminitis from wheat, if they got poison into the system it did not matter much what it was from. As to Mr. Smith's remarks about influenza, there was no doubt they walked about with the poison in them. He had seen horses brought from grass into a stable and catch influenza, and others had been brought up and the temperature graduated and they had caught influenza. He believed that gastric distention was more easily removed by medicine than tympanitis of the intestines. They sometimes had great dilation of the stomach in the horse, and he had seen horses lie on their stomachs, and use pressure to cause them to eructate. He thought

they would see the time when the horse's stomach would be punctured, and he suggested opening of the œsophagus as a means of relief. He cited a case in the human subject of a simple fracture of the tibia, where tetanus suddenly set in, and death took place. He had never seen any abscess from punctured colon, and the reason was, he thought, because he always washed his instruments with an antiseptic.

Some Interesting Cases.

Mr. JAMES SMITH said that when requested by the Secretary to contribute a short paper for the meeting, he pointed out that this was not his turn, but that he would as usual do his best. Bearing in mind the success which the relating of interesting cases had met with at the meetings of other veterinary medical societies, he came to the conclusion that a few rough notes might not only prove acceptable, but also be the means of creating a discussion by which they all might derive benefit. In the first case he was called to see a cow which was down and could not get up. She was due to calve in three weeks, and exhibited every symptom of milk fever. She was unconscious for thirty hours, but got better, and calved at her proper time.

Case No. II. was a mare which was unwell and swelling behind, she having slipped a foal four days before. The foal was dead, but appeared healthy, and had only been dead a short time. On examination, he found the feet of another foal, which, when he got it out, had been dead some six weeks. The mare made a good recovery and is in foal again.

A two-year-old cart filly purchased the day before in a fair on a fearfully hot day, presented the following symptoms next morning. It was standing dull and listless in a loose-box, with head depressed, mucous membrane slightly injected, pulse 60 and full, and temperature 104. On attempting to move, the filly stumbled and reeled and sank on to her knees and pressed her head on the straw. This went on for a week, and then the severe symptoms began to disappear, but the filly never had complete control of her actions. The treatment consisted of cathartic ball, cold water to head, blister behind the poll, and bromide and iodide of potass. in the food. He suggested this as a case of sunstroke.

Having referred to an epidemic of strangles in this district, in which varying symptoms presented themselves, Mr. SMITH invited discussion in the cases he had described.

Captain RUSSELL agreed that cases like those were likely to prove of interest to the members of this Society. He remembered a case in which a cow suffered from every symptom of parturient apoplexy six weeks before she calved. A sow pig had two pigs and went a month and had nine more from a second hogging, and brought them up. There was no doubt the filly referred to suffered from sunstroke. He had seen horses drop in the streets in Calcutta, but he had never seen a horse in a stable suffering from sunstroke. He agreed as to differing symptoms in certain diseases, and said, as to influenza, some horses would have an abscess in the sub-maxillary and others had no abscess, but why the difference he was not prepared to tell.

Mr. FREER said ante-partum paralysis reminded him of a case of a cow so affected, which was said to be about calving, and they turned out to be twins. There was often fever but no sub-maxillary abscesses in the cases to which reference was made. He remembered attending a stable of horses in a similar condition, and about two months after a young mare was found reeling about and showing evidence of brain disturbance, and the *post-mortem* showed a cerebral abscess.

Mr. PORTER-SMITH cited a case which he diagnosed as tubercular

meningitis, and Professor McFadyean found the brain crammed full of tubercular bacilli.

Mr. J. MACKINDER said he had attended a cow in a similar condition to those described after having calved ten weeks.

Mr. ROBINSON proposed a vote of thanks to both Mr. Dickinson and Mr. Smith for their interesting papers. They were very much obliged to Mr. Dickinson for his scientific address, and the most interesting part to him of Mr. Smith's paper was that of milk fever. There was no doubt milk fever was due to a toxic poisoning in the system, such as was also produced by indigestion, but cases six weeks before or ten weeks after calving were not, he held, pure cases of milk fever, but cases of indigestion or septtc poisoning in the animal system, owing to non-excretion. This produced a sedative effect of the same character as the true poison of milk fever.

Mr. HARTLEY seconded the votes of thanks, which were carried unanimously.

New Members.

Mr. H. Bentley Eve, of Caistor, Mr. A. J. Sellers, of Market Deeping, and Mr. W. A. Allott, of Upwell, were elected members of the Society.

Captain RUSSELL proposed, and Mr. BROOKS seconded, a cordial vote of thanks to Mr. Rudkin for his conduct in the chair, and the members present then adjourned to dinner, after which the usual toasts were duly honoured, concluding the meeting.

J. A. ROBINSON, *Hon. Sec.*

EASTERN COUNTIES VETERINARY MEDICAL SOCIETY.

The winter meeting of the members was held on Tuesday, November 24th, at the Royal Assembly Rooms, Yarmouth. It was largely attended and a highly successful meeting. The President (Mr. W. Shipley, Sen., of Yarmouth) occupied the chair, and amongst those present were Messrs. S. Smith, W. Bower, F. Case, E. Case, Sen., J. Hammond, H. Roberts, E. Case, Jun., F. B. Taylor, C. Nesling, P. Turner, H. Wilkinson, T. E. Auger, J. E. Kitchen, J. K. Gooch, J. D. Overed, W. Shipley Jun., (hon. sec.) and Dr. Case.

The HON. SEC. nominated Mr. C. E. Norgate for election.

Mr. T. E. AUGER seconded, and this was adopted *nem. con.*

Exemption from Jury Service.

The HON. SEC. read a letter from the Southern Counties Veterinary Medical Association proposing to petition the Council of the R. C. V. S. to obtain an Act of Parliament to exempt veterinary surgeons from service upon juries. In the course of discussion it transpired that only one member, Mr. J. Hammond, had been inconvenienced in this way.

The HON. SEC. pointed out that it would cost the College £500 or £600 to pass an Act, and the question was whether it was worth while going to that expense.

Mr. J. KITCHEN claimed that veterinary surgeons should enjoy the same privileges as the members of medical profession.

Mr. HAMMOND then moved that the resolution of the Southern Counties Association be adopted.

Mr. E. CASE seconded, and this was carried unanimously.

Strongylus Tetracanthus.

The HON. SEC. who produced a tray of specimens said that at the February meeting held in Ipswich he read a few notes with reference to "the presence of strongylus tetracanthus in colts" which this autumn seemed to be exceptionally prevalent. He had just been able to obtain specimens from two colts,

one fortunately from a colt to which he referred at Ipswich. This colt, after three months' treatment, got well though he never expected it would. The treatment was carbolic acid and it was carefully nursed. A few days previously it was being exercised when it broke away, slipped on a stone and fractured its pelvis, from which it died. He was able to get parts of the cæcum and colon, and he was very pleased to find traces of the parasites. He had taken two pieces of the colon and stretched them on glass and they showed presence of red worm very plainly. There were some embryo worms, and probably if the specimens were carefully examined microscopically they would find the eggs of the worm. It helped to support his theory that once these worms got into the bowel they remained and bred there—that it was not necessary for the animal to pick them up in another year in order to have a renewed attack. He had another case of a colt which he found suffering very seriously with red worm, and he advised his client to destroy it. He produced a piece of the bowel which was full of worms. There was also a section of the mesenteric blood-vessel plugged with emboli caused by the presence of strongylus armatus. Then there was a small portion of the cœliac axis in which these worms were again present. At Ipswhich he said he believed carbolic acid would destroy these worms. He had then had two or three months' experience, and found that the worms would not yield to anything else. As they were likely this year to have an extra number of these cases he should like to hear the experience of others.

Mr. GOOCH said he had treated red worm for several years with carbolic acid, dialysed iron, and turpentine, which had been a signal success though his last two cases died. No other treatment had any effect at all and this treatment must be persistently adhered to.

The HON. SEC. said that in his opinion, where the worm had got into the blood-vessels, no recovery was possible, and if they would make a careful *post-mortem* on those cases that they failed to cure, it would be interesting to ascertain whether the worm had attacked the blood-vessels.

Mr. GOOCH said that he had made one hurried *post-mortem* simply to convince a sceptical owner that his colt had died from the effects of this worm. He, however, only opened the bowel, and there found the parasite.

Mr. F. B. TAYLOR said he had a case of strongylus tetracanthus in a yearling colt just about the time that the Hon. Sec. read his paper, and he therefore decided to try carbolic acid. He persevered for two or three weeks until meeting Mr. Gooch. who told him of his prescription, and he therefore combined dialysed iron with his mixture of turpentine and carbolic acid. For some time he could find the worm easily in the fæces, but the colt made a good recovery, and was alive at the present time.

Mr. T. E. AUGER said that his colts treated with carbolic acid in addition to turpentine and other things all recovered. He considered it a very good thing.

Endo-Carditis in the pig.

The HON. SEC. next drew attention to a specimen of endo-carditis, a large plug appearing in the valve of the heart of a pig with a little pericarditis. The specimen was intended to bring before a medical society's meeting. The pig, bought fat for slaughter, was supposed to be suffering from swine fever. He said that he had often found heart disease in pigs. This pig might have been killed and eaten, and no one known anything about it. It was an open sow. He attributed the condition to septic endo-carditis,

Mr. OVERED: Prof. McFadyean says it is not unfrequent in swine fever. I have discovered plugs on many occasions, but not so large as that.

Mr. GOOCH: Is it not due to some micro-organism? Prof. McFadyean says so.

Mr. F. CASE said that some months since, he was called to a farm where there were 270 pigs. He picked one from a lot of fifteen which had wasted, and when slaughtered it was found to have a heart like the one shown. That was the first case he ever had. Then he went into another yard where there were store pigs, had one slaughtered, and found it with just such another heart. He sent his report to London, and as it was evident the pigs had swine-fever, 174 of them were slaughtered.

Mr. HOWARD said it might be a plug of lymph which became organised after a time. They found them sometimes in the aorta.

Mr. J. D. OVERED, F.R.C.V.S., here read a paper on "Some pathological conditions of the Synovial Articulations, including open joints," as follows:—

The structure of joints in the animal economy owing to their complex nature including bones and cartilage, ligaments, synovial membranes, blood vessels and nerves, and considering the movements they are required to perform in the hunting field, the racecourse, and elsewhere, are exposed to the risk of many accidents simple and severe, and liable to various diseases, of more or less importance, some of which are such as try most severely the professional skill and patience of the veterinary surgeon to whose care the patient is entrusted, and who finds too frequently that all his efforts have failed to restore his patient to health and the diseased parts to their normal condition.

Without wearying you with a description of the minute anatomy of the joints, suffice it to say that they are classified as follows: firstly, the diarthrodial or free-moving joints found at the extremities of the long bones and on the faces of short bones; secondly, the amphiarthrodial or those of limited movement, illustrated by the vetebræ; and thirdly, the synarthrodial or those comparatively without movement, as in the flat bones of the head in early life.

As it is with the first two classes of joints that we are most concerned in practice, it is chiefly in this direction that my remarks will apply. We find the injuries to which they are exposed—kicks, contusions, punctured and lacerated wounds—are by no means infrequent. Scarcely less frequently are these joints found to be subject to disease in one or other of the following forms: inflammation of the synovial membranes, ulceration of the articular cartilages, calcareous and ossific deposits, caries of the bones, increased or defective synovial secretion, anchylosis of the joints, etc., some of which I propose briefly now to consider.

Inflammation of the synovial membranes or acute synovitis may be present in any true joint; nevertheless, some joints are more frequently attacked than others. The attack may be either idiopathic, traumatic, or metastatic, but in any case the treatment, with a reasonable prospect of a successful issue, must be prompt and decisive.

The Idiopathic or primary form is not usually associated with open joint and consequently is more amenable to treatment. In acute synovitis the attack is generally sudden, the animal is found to walk stiff and "whole," the joints are not flexed, and he moves with great difficulty and prefers the recumbent position. A high state of fever now obtains indicated by a quick and firm pulse, accelerated breathing, occasional rigors, pain more or less severe with probably patches of perspiration, on the body of the affected limbs, which soon begin to swell at the joints, these swellings, due to effusion, are at first somewhat soft and elastic to the touch, but shortly become firm, painful and unyielding.

In the treatment of these cases absolute rest is of vital importance in the early stage and should be strictly enjoined, a mild laxative may then be given followed by moderate doses of sedatives, as belladonna, aconite or chloral hydrate, either of which I consider preferable to opium, combined with an

alkali, as potass carb. or soda. In the later stages when the strength is impaired nitro-mur. acid, or vegetable tonics as bark, nux vomica, etc., varied by an occasional dose of nitrous ether and potass iodide will be indicated, supplemented by stimulants and a generous diet. The patient should be kept warm and free from draught. Locally the frequent application of warm alkaline fomentations should he had recourse to, and a compound liniment containing soft soap, opium, and ether; or one compossed of meth. spirit, potass iodide, and liquor ammon., oil should be gently rubbed into the parts affected, which should then be wrapped in soft flannel secured to the limbs when practicable. At this stage gentle walking exercise should be tried and continued if found helpful. In some cases a mild blister applied to the joints and repeated if necessary will materially expedite recovery by promoting the absorption of the exudate and thus leaving the joint with more freedom of motion.

Traumatic Synovitis differs from the form of disease which we have just noticed, inasmuch as it is either associated with or the result of a wound, which not unfrequently penetrates or divides the capsular ligament, exposing the synovial membrane and articulation, causing an escape of synovia, and what is popularly known by the term open joint with all its attendant evils. The wound may be either incised, lacerated, or punctured. Lacerated or incised wounds are characteristic of broken knees, and when associated with severe contusions producing sloughing of the injured tissue and exposure of the joint, which is by no means of rare occurrence, the case becomes very serious, always impairing the usefulness of the animal, reducing its value, and not unfrequently necessitating its slaughter. Punctured wounds of the joints are more frequent in the elbow and fetlock of the fore extremity, in the stifle and hock of the hind extremity. In addition to these we may have open coffin or navicular joint in either fore or hind feet.

In the treatment of incised or lacerated wounds when associated with open joint our first care must be to carefully examine the wound, and remove every particle of dirt or anything else which needs to be removed, then sponge the wound and surrounding parts with an antiseptic dressing of hydrarg. chlor. 1 in 1,000, and endeavour to close the wound by sutures, adhesive plaister bandages carefully applied, or other means which may be suggested by the requirements of the case, apply two or three films of collodion and cover the wound with a pledget of soft tow, which must be kept in position. Under favourable circumstances the dressings need not be removed for some days. I have left them undisturbed a whole week with the best results. The patient should then be carefully placed in slings, kept perfectly quiet and made as comfortable as circumstances will permit. Cold water irrigation to the wound is highly extolled by some surgeons, and the application of a smart blister to keep the leg fixed is advised. If the patient evinces much pain and restlessness ten drops of Fleming's tr. aconite or $\frac{1}{2}$ oz. of chloral hydrate may be placed in the water, or if the fever runs high the same quantity of potass. nit. may be substituted for the chloral hydrate. A spare diet of mashes, boiled carrots, grass or steeped hay should only be allowed. The treatment above applies to the first stages of the injury, before suppuration has been set up. When this has once been established I am of opinion the wound can only heal by granulation and the treatment must then be varied and directed towards effecting that object.

Metastatic Synovitis, popularly known as joint-ill, is a disease of undoubted septic origin chiefly affecting young suckling animals—foals, calves, and lambs, soon after birth. In foals it generally occurs from the first to the fourth week, and it is chiefly of the disease as affecting foals that I shall now

speak. This bane of juvenile animal existence is one with which the veterinary surgeon is much too familiar, for he knows from experience the probable result of his treatment—in the majority of cases notwithstanding all the skill, care, and attention bestowed, the patient will probably die. Some persons have sought for the cause of this fatal malady in the abnormal condition of the mother's milk, and others in the influence of heredity, while I am content to believe the disease has its origin in the purulent phlebitis of the umbilical cord, this condition of the cord soon involves the surrounding tissues, and is followed by suppuration and pyæmia extending to and infecting the joints, more particularly the hocks.

The first symptom is the extreme difficulty of moving, which is only done with great reluctance and in much pain, for which reason he persistently lies. Around the joints there are œdematous infiltrations, hot and painful to the touch; the usual symptoms of acute fever are present, great thirst is evinced but the appetite is entirely lost. In the first stages the bowels are usually costive, followed soon by diarrhœa or dysenteric purging and extreme prostration of the vital powers. In some instances the disease runs a rapid course and proves fatal in two or three days, but more frequently the case is prolonged to as many weeks, and abscesses form in and around the joints, also in other parts of the body. Sloughing of the skin, involving the ligaments of the joints, then takes place, synovia, pus, and coagulated lymph is constantly discharged, the bones and articulations become completely disorganised, and the long-suffering patient dies from exhaustion. Internal complications may also be present as pneumonia, pericarditis, or icterus, and these hasten a fatal termination of the case. From the foregoing observations it must necessarily follow that the prognosis will be unfavourable, as by far the greater number of cases prove fatal. Bollinger thus describes the *post-mortem* appearances of two foals, one three weeks and the other five weeks old. Inflammation and thrombosis of the pulmonary artery and the umbilical vessels continued by the umbilical vein to the portal vein, double pleurisy with pericarditis, purulent arthritis in several joints, intra-muscular and subcutaneous abscesses, and cutaneous erysipelas.

Curative treatment to be of any service must be commenced in the very earliest stage of the disease. Febrifuge medicines with anodynes, followed by tonics and cod liver oil, etc., are the lines indicated, and good nitrogenous gruel, beaten up with eggs, should be freely given, and the general comfort of the patient considered.

Locally aseptic dressings of hydrarg. bichlor., the compound anodyne liniment, collodion, iodoform with tannic acid, or lanoline and carbolic oil, each have their advocates, and may be used at the discretion of the veterinary attendant, and the parts enveloped in fine tow and moist bandages.

(To be continued.)

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A MEETING of the Scottish Metropolitan Veterinary Medical Society was held on the afternoon of Wednesday, 2nd December, 1896, in the Clarendon Hotel, Edinburgh. The chair was occupied by the President, Mr. John Cameron, Berwick-on-Tweed, and among those present were—Principal Williams, Professor O. C. Bradley, Professor W. Owen Williams, Mr. Peter Moir (secretary); Mr. J. Campbell, Kirkcudbright; Mr. J. Aitken, junr., Dalkeith; Mr. J. Borthwick, junr., Kirklistan; Mr. A. Boyd, Melrose; Mr. R. Rutherford, Edinburgh; Mr. R. Smart, Mr. Thomas Keddie, Mr. A. C. Newsom, Mr. W. E. Frost, and a number of student associates.

After the minutes of the previous meeting had been adopted, a cordial

vote of thanks was awarded to Mr. A. Boyd, Melrose, for the trouble he had taken in connection with the summer meeting of the Society at Melrose, and a similar compliment was paid to Professor Paton for his most interesting demonstration of the new X rays on that occasion.

The election of office-bearers was then proceeded with.

The CHAIRMAN announced that a telegram had been received from Mr. Thompson, Aspatria, suggesting that Mr. Rutherford should be elected president.

Mr. RUTHERFORD, Edinburgh, asked the meeting not to consider his name for a single moment.

The CHAIRMAN moved that Mr. A. Boyd, Melrose, be elected president for the ensuing year, and this was heartily agreed to.

Mr. BOYD, in returning thanks, said he accepted the office with mixed feelings. He accepted it with pleasure, because he considered it a great honour to be elected president of the Society; but at the same time he accepted it with very great diffidence.

Mr. RUTHERFORD suggested, with regard to the appointment of vice-presidents, that it would be a graceful thing to elect them from the various county districts, and he suggested the districts of Perth, Dundee, and the West.

Various names were then proposed, but some of the gentlemen named had already acted as vice-presidents. Ultimately the following three gentlemen were chosen:—The retiring president, Mr. Cameron; Mr. Thompson, Aberdeen; and Mr. Campbell, Kircudbright.

The CHAIRMAN proposed the re-election of Mr. Peter Moir as Secretary.

Mr. MOIR begged to decline the honour. He considered that there were a number of young men in the Society who would make capital secretaries. He had already held the office for five years, and he thought it was time that the honours went round.

Mr. Moir's re-election as secretary was unanimously agreed to.

On the motion of Principal WILLIAMS, a hearty vote of thanks was awarded to Mr. Moir for his past services.

A Horse Ambulance for Edinburgh.

Mr. R. RUTHERFORD, Edinburgh, asked leave to call attention to a matter, which he considered was of great importance. They might recollect that two years ago he drew attention to the urgent necessity there was in Edinburgh, as in all large cities, for a public horse ambulance.

Principal WILLIAMS (interrupting) said that this matter had already been before the Town Council. The order had been given for a horse ambulance, and it ought to have been in the city months ago. He could get no satisfaction from the Clerk of Works. He had heard nothing further about it.

Mr. RUTHERFORD, resuming, said he brought this matter very prominently before the Society two years ago. They then got the promise of Principal Williams, who was also a member of the Town Council, that he would use his influence to get this public horse ambulance. About the same time, he (Mr. Rutherford) took the trouble of waiting upon the chairman of the Scottish National Society for the Prevention of Cruelty to Animals. That gentleman most distinctly promised at that time to do all in his power to see that a horse ambulance was provided for the city. He did not say it would come out of the funds of the Society, but he was to use his influence, and he led him to understand that if this ambulance was not provided by the city, it would come from the Society. There was no use in recapitulating the reasons why they should have such an ambulance. The principal reason was the humane one. When an animal received an injury, it had to be removed forcibly, and this

could not be done without causing the animal considerable pain. This might to a large extent be avoided, if a proper horse ambulance was provided. Accidents were frequent enough in summer, but they were approaching the time when they were of every day occurrence. Some of the scenes witnessed on the streets of Edinburgh during the winter were most painful. He did not know upon whom the burden lay of providing such an ambulance. Most certainly it did not fall on the owner of the animal. When a horse fell on the street it became at once an obstruction and was really in the same position as a person who sustained an accident on the street, when the police had to remove him until proper assistance was obtained. To his mind the civic authorities were the people to whom they should look to step in and provide a proper ambulance. He thought the Society for the Prevention of Cruelty to Animals should show some interest in this matter. It was really a matter of prevention of cruelty to animals to provide an ambulance for their removal, and thus save the poor unfortunate animals all the pain and suffering they endured, when they fell on the street and were unable to help themselves. The Society for the Prevention of Cruelty to Animals had been exceedingly lax and careless in allowing this state of matters to go on for years, and doing nothing themselves in the way of remedying what was a crying evil. If it was the acceptance of a legacy, or the appointment of some old soldier to the post of inspector, the matter would be attended to at once; but when it came to spending some money on the prevention of cruelty, they were not so ready to pay attention to the matter. The same remark applied to the town council. If it was a case of pulling down some bridge or knocking down a lot of fine buildings, or a trip to Balmoral, the money would be spent and would be considered cheap; but when it was the provision of something which was really a public want, they were very dilatory in seeing it carried out. Unless the public took the matter up, they might wait until doomsday before they got this horse ambulance provided. When accidents occurred on the streets the veterinarian got any amount of advice, but no assistance, from those who would be supposed to give them assistance. The police and the officers of the Society for the Prevention of Cruelty to Animals would look on for a week, and would never think of giving a helping hand. They would, however, tell them, as a client of his was told, "Now, be careful. Don't be cruel to the horse. We are here to watch that there is no cruelty to the horse." But they never stirred a hand or foot to assist in the removal of that horse.

Principal WILLIAMS said that after the explanation he had already given, Mr. Rutherford should not have said that the town was to blame. The money for a horse ambulance for the city was voted twelve months ago, and the money was in the hands of Mr. Cooper, the Borough Engineer. That gentleman had promised over and over again to have the ambulance ready. Why it was not ready he did not know. He suggested that the President and the Secretary should send a letter to the Town Council, and ask them to expedite the matter. A letter from the Executive of the Society would do a great deal of good.

Mr. RUTHERFORD said he was quite willing that the matter should reach the public through the medium of the press, which was the most powerful way of bringing it before those in authority.

The CHAIRMAN said that before they passed from this matter there was one subject to which he would like to draw attention. One of the greatest cruelties to which horses were subjected was that of pulling heavy loads, or loads of any kind, in frosty weather without being sharpened. Considering the simplicity and cheapness with which the sharpening of horses could be performed, he thought the Society for the Prevention of Cruelty to Animals should pull up all those owners who kept their horses slipping and sweating themselves through want of their being sharpened.

Principal Williams and the Jamaica Cattle Plague.

Principal Williams, of the New Veterinary College, Edinburgh, gave an interesting account of his recent visit to Jamaica, which was undertaken at the request of the Government, to investigate a mysterious disease which was affecting the cattle in the island. At the outset the Principal referred to the rumours which had been afloat as to his serious illness in Jamaica, and said these had been circulated for the purpose of injuring the institution with which he was connected. He wished the veterinary public of Scotland to know that he was still alive, because the report preceded him that he was lying buried among the mountains of Jamaica. It was a remarkable thing, and a circumstance that happened very rarely indeed, that a man should die twice in the course of the year. He had died twice that year, but he was still alive to tell the tale. They might possibly have noticed that on the Register of the Royal College of Veterinary Surgeons he was marked "deceased." That was evidently an error of the Secretary, who had confounded his name with that of the late Professor Walley. Some of the members of Council were indignant over the mistake, and would have made a row, but he looked upon it as a mere slip of the pen, and did not trouble himself at all about it. When it came, however, to being killed a second time, he thought it was too much of a joke. He was surprised, on his return home, to find his friends saying, "Hallo! you have got over your sickness?" He asked, "What sickness?" "Oh," they said, "the sickness you were dying from in Jamaica.' He made inquiries, and found that this report had been circulated for the purpose of damaging the school with which he had been so long connected, for it was spread about just shortly before the session. Although he had died twice and had performed the miracle of the resurrection on two occasions, he trusted that when the time came for him to go, he would leave his institution in such a condition as still to be able to command that esteem and support of the profession which had been extended to it so long. All he suffered from was an eruption caused by mosquito bites, but these did not do much harm. All the time he was in Jamaica he was in the best of health—more so than he sometimes was in Scotland. His visit was associated with a great deal of pleasure, and he certainly suffered no harm. He repeated that the reports had been circulated for the purpose of endeavouring to damage his school, and he was glad to refute the insinuation. Proceeding to describe the condition of the stock in Jamaica the Principal stated that the horses were generally dwarfed in appearance. They were very well bred horses, but the majority of them did not grow much above 14 hands, because they were sadly neglected and ill-fed. The cruelty extended towards them was sometimes dreadful. If a Society for the Prevention of Cruelty to Animals existed there, things might be improved. He had been driven behind one pair of ponies, about 14 hands high, every day for four weeks (except Sundays), a distance of 40 to 50 miles per day, under the hot sun of Jamaica. They did their work very well. They fed well and were fresh in the morning. They were really remarkable horses, but owing to starvation and inattention to breeding they were diminished in size. Mules were also very much used for driving in Jamaica. He preferred himself the mule to the horse, because the mule was in better condition than the horse, having more flesh upon him. Both mules and horses were extremely sure-footed, and he had ridden up mountain tracks that would be considered a terror by anybody in this country. The mules and horses were subject to a species of farcy.

There were suppurations, aggravated by flyblows. The natives tried to dress this with tar, but the dressing was simply an apology. Cattle suffered greatly from sores, and calves suffered a great deal from anæmia and wasting

from bad feeding. In such cases a wound spread until it became an immense sore. They discharged a white matter, not pure pus, but a peculiar caseous, whitish material. There seemed to be no strength, as it were, in the animal's body to repair an injury. Without mincing words, he declared that the calves were starved. It was most distressing to witness the calves, which were sometimes simply frantic for want of food. Their mothers, when diseased, were often skin and bone, and were not in a condition to give them milk. The people were not in the habit of feeding the calves by hand. In some pens nearly every calf had died, and on an average 40 per cent. of all that year's crop of calves had died. The great majority of these had died from starvation, because the people had no thought whatever of hand-feeding. If the mother could not give the milk, the calf starved. The cattle in Jamaica were a mixture of many breeds, but the leading characteristics were generally those of the Devon and the Hereford. There were some old black cattle from either Wales or Scotland, and there were some with a mixture of Highland blood, and there were, besides, some shorthorn cattle and two breeds from India. The old Brahmin and the Mysore cattle were not taken to the fat market until they were four or five years old, and in his opinion this was a mistake. He thought that, with a little artificial feeding, the cattle would be fit for the market when three years old. The disease from which they suffered was due simply to ticks, which existed in Jamaica in countless numbers upon nearly all the cattle. He saw ticks upon sheep, but not to any great extent; and it was curious that there were whole colonies of goats in Jamaica without a single tick upon them. The Silver and Shield tick had a spear in front with four prongs, which opened out after being inserted into the skin of its host, and when an attempt was made to pull it out, unless it were done very carefully and without force this spear broke, and an abscess was apt to form. Each of these spear-like projections was serated like a saw, and by manipulating he found that the tick had the power of opening out those four prongs. There were thousands upon thousands of small, and many large, ticks upon some of the cattle. He could assure them that they could not put a pin's point upon some of them without touching a tick. When they learned that a female tick would lay about two thousand ova in a few days, they would see what a terrible cause of disease this was. In making *post-mortem* examinations of these cattle, be found some complicated cases. He found what the Agricultural Department of Great Britain called pleuro-pneumonia, but which was really broncho-pneumonia, identical with that in American and Canadian cattle. There had been no pleuro known in Jamaica, but he had brought back specimens which were the exact counterparts of what had been found in American and Canadian cattle, as well as in home cattle, which had died from post-parturient and other forms of bronchitis and broncho-pneumonia.

The cause of the whole affair was how to destroy these ticks. Before leaving he had suggested a method of treatment; and he had received a letter from a gentleman who accompanied him all over Jamaica, at the request of the Government, stating that his treatment was being carried out, and everyone was in its favour, and that things were fairly well with the cattle just then. To stamp out these ticks was a matter that required great consideration. He had suggested boiled linseed and so much tar. He had experimented as to the strength of the tar, and he found that one part of tar to four parts of linseed would suffice. Any ordinary oil would destroy the ticks, but he wanted something which would remain adhesive to the skin and prevent the ticks from settling again. One night he had an animal taken out, and got all the large ticks removed from its skin. It was placed overnight in a pen where there were said to be no ticks, and next morning it was covered over with as many as on the night before, the small ticks having engorged them-

selves during the night. The suggestion he had made seemed to have proved beneficial to some extent, and he was at present engaged trying to get a cheap and effective dressing. Some material at the cheapest possible rate must be found. He was experimenting with various products, and he hoped to be able to find out something which might eventually tend to stamp out this terrible disease at a cheaper rate than what he had already recommended. In conclusion, the Principal stated that wherever he had gone throughout Jamaica he was received most kindly, and had been treated with the greatest hospitality.

The CHAIRMAN, in conveying the thanks of the meeting to Principal Williams for his most interesting remarks, said they were all extremely delighted to see him back amongst them, looking so vigorous and in the evident enjoyment of the very best of health.

(*To be continued.*)

THE CENTRAL VETERINARY MEDICAL SOCIETV.

A SPECIAL meeting, followed by an ordinary meeting, was held at the Royal College of Veterinary Surgeons, Red Lion Square, Bloomsbury, on Thursday night, the 3rd instant, under the chairmanship of Lieut.-Col. J. Kettle, the President of the Society. The other Fellows present were :—Messrs. W. F. Barrett, A. L. Butters, J. K. Bruce, H. W. Caton, M. Clarke, C. H. Cordy, F. W. Dowell, T. C. Garry, J. S. Hurndall, F. W. Kendall, Hugh A. MacCormack, Professor Macqueen, F. C. Mahon (Hon. Sec.), J. H. Manton, W. Perryman, R. Porch, Professor Pritchard, C. J. Reakes, W. Reekie, A. Rogerson. W. Roots, J. Rowe (Hon. Treas.), F. Samson, H. Singleton, W. E. Taylor, J. E. Tooth, G. Upton, W. Willis, S. Villar; and as visitors—Major G. Durrant, A.V.D., Major S. Duff-Gillespie, A.V.D., Vet.-Capt. Nunn, C.I.E., Vet.-Capt. Haslam, M.D., M.A., D.Sc.; Messrs. P. Harris, M.R.C.V.S., H. M. Lennox-Conyngham, M.R.C.V.S., and F. Scott, M.R.C.V.S.

Special Meeting.

The special meeting was convened to consider a motion arising out of a motion, of which Mr. W. Hunting was the proposer, and Mr. H. G. Rogers the seconder. The resolution ran :—"That the trustees be instructed to withdraw the moneys of the Society from deposit account and purchase £100 worth of Consols, handing the balance to the treasurer." Neither Mr. Hunting nor Mr. Rogers was present when the proceedings began, the former arriving later and the latter sending a telegram expressing regret at his inability to attend.

Answering Professor W. Pritchard, Mr. J. ROWE, Hon. Treasurer, said he had a balance in hand of £43, and arrears were outstanding to the amount of about £58.

Professor PRITCHARD: Then, in round figures, you ought to have £100.

Professor MACQUEEN: I submit that this meeting is entirely irregular. There was no such remit, as appears on the agenda, from the Council regarding the investment of the funds of this Society, to a special meeting. The special general meeting of the Society was to be held to consider the question of dealing with members in arrear with their subscriptions. I find, according to the rules, that the investment of the funds of the Society is a matter entirely within the power of the Council; and any action of the Council has to be remitted to an ordinary general, and not a special general meeting of the Society. We are now invited to discuss the action of the Council, and probably to alter its decision. Very likely the result will be that we shall have to go back to the Council again.

Mr. BARRETT: Rule 61 says that a special general meeting shall be called for definite objects.

Professor MACQUEEN: Quite so, but we are putting the cart before the horse.

The CHAIRMAN said he, too, was of opinion that the subject for the meeting was the question raised by Professor Pritchard—whether Fellows who were two years in arrear should cease to be members of the Society. He wrote to the Secretary that, according to his recollection, that was the object of the special meeting and not the consideration of the question of investments. Mr. Mahon replied that he (the Chairman) was mistaken. As, of course, the Secretary took notes of the Council's meeting, and he (the Chairman) did not, he bowed to his decision.

The SECRETARY explained that before the circulars convening the meeting were printed he wrote to Mr. Hunting, asking him whether it was necessary to put down his proposal as to arrears of subscription on the agenda.

The CHAIRMAN: So the Secretary really acted upon Mr. Hunting's letter, and he (Mr. Mahon) wrote to me that this matter of the investment of funds should be brought forward at a special meeting.

Professor MACQUEEN: The rules are quite distinct. Rules 21 and 26 cover the ground exactly.

Professor PRITCHARD: I should like the Secretary to refer to the motion I brought forward. I was under the impression that the motion dealing with members in arrear with their subscriptions was absolutely carried and settled.

The SECRETARY read minutes of the Council which did not confirm Professor Pritchard's impression.

Mr. BARRETT: Are we going to call another meeting to discuss and dispose of this matter with regard to arrears?

Professor PRITCHARD: We have nothing on the agenda enabling us to deal with the matter to-night.

The CHAIRMAN: This meeting should have been called to enable us to deal with that matter. I think the best way out of our difficulty is to consider this meeting at an end, and to proceed with the ordinary meeting. This was agreed.

The Monthly Meeting.

On the motion of Mr. S. VILLAR, seconded by Professor PRITCHARD, the minutes of the preceding ordinary meeting were taken as read and were confirmed.

The SECRETARY read communications from Professors Hobday and Penberthy, and Mr. H. G. Rogers expressive of regret at their inability to be present.

Foreign Service and Honorary Fellowship.

The SECRETARY read a letter which he had received from Vet.-Lieut. T. E. Lewis, who wrote:—"Will you kindly note that as I leave for foreign service shortly, I shall unfortunately be obliged to resign my membership of the Central Veterinary Medical Society."

Mr. S. VILLAR: In the ordinary course when resignation is tendered, it has to be received and accepted; but going back to former years, I can remember three instances in which Army officers, Fellows of this Society, going on foreign service have been elected honorary members during temporary absence abroad. We cannot elect Lieut. Lewis a honorary Fellow at this meeting, but we can suggest to the Council that they should elect him. I therefore beg to propose that the letter of Lieut. Lewis tendering his resignation be referred to the Council for their consideration.

Mr. TAYLOR seconded the motion, which was carried unanimously.

Mallein and Glanders.

The SECRETARY read the subjoined letter :—

"West of Scotland Veterinary Medical Association,
"EAST KILBRIDE, *November*, 1896.

"Dear Sir,—I am requested by the members of the above Association to ask you to lay before the members of your Society the following resolution, which was proposed by Dr. M'Call, seconded by Mr. W. Anderson, supported by Mr. P. Moir and carried unanimously at our last meeting :—

"That the West of Scotland Veterinary Medical Association recognising the value of mallein as a diagnostic agent in suspected glanders, recommend that the opinion of the various veterinary medical associations be sought upon this subject, in order to decide the advisability of memorialising the Council of the Royal College of Veterinary Surgeons to lay before the Board of Agriculture the following suggestions : When glanders occurs in a stud of horses compulsory testing with mallein should be performed upon each animal in it, and each horse which responds to the test and is, therefore, glandered according to the test, should be thereafter slaughtered and compensation paid to the owner out of the funds of the Board.

"I shall be pleased to hear from you the result of your consideration of the resolution.—Believe me, dear Sir, faithfully yours,

"HUGH BEGG, *Hon. Sec.*"

Professor PRITCHARD: If my memory serves me rightly, I think this matter has been threshed out once, if not more than once, by this Society. Still, I think the letter should receive some kind of reply. I move that the letter be suitably acknowledged and that the West of Scotland Veterinary Medical Association be informed that the matter to which they refer has already been before the Central Veterinary Medical Society who approve of the suggestion which the Scotch Association has made.

This was seconded by Professor MACQUEEN and unanimously adopted.

Nominations.

The following gentlemen were duly nominated for election as Fellows of the Society: Vet.-Capt. J. A. Nunn, F.R.C.V.S., C.I.E., D.S.O., A.V.D.; Vet.-Capt. A. J. Haslam, B.A., M.D., F.R.C.V.S., A.V.D.; Vet.-Major G. Durrant, A.V.D.; Vet.-Major S. Duff Gillespie, A.V.D.; Messrs. C. H. Welfare, M.R.C.V.S., Tudor House, Staines; F. R. Stevens, M.R.C.V.S., Redhill; and J. Nettleton, M.R.C.V.S., Broadway, Hammersmith.

(*To be continued.*)

NEW VETERINARY COLLEGE, EDINBURGH.

AT the recent examinations of the Royal College of Veterinary Surgeons held in Edinburgh, the following students from the above College passed their examinations :—

First Professional.—Messrs. T. Parker and F. Moon.

Second Professional.—Messrs. S. Robson, H. Whipp, G. A. Harrison, J. Kelly, and J. Paul.*

Third or Class C, 4 years.—For this examination five students presented themselves, all passing, three obtaining honours: Messrs. R. J. Bailey, W. M. Ogilvie, M. Webb,* H. H. Ferguson,* and A. M. Porteous.*

Class C, 3 years, *Final Theoretical* portion. –Messrs. A. P. Beesley, A. W. Findlay,* J. D. Knowles, J. Lomas, A. M. Munro, H. Locke, R. S. Rowlands, A. M. Walker, and A. A. Wilson.

Class C, 3 years, *Practical*, and obtained their diplomas :—Messrs. A. P. Beesley, Lancaster; A. W. Findlay, Brighouse; J. D. Knowles, Wigan; H. Loche, Manchester; W. L. Jones, Menai Bridge, N. Wales; A. M. Walker, Portobello; T. Ryan, Limerick.

* Second class honours.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

Median Neurectomy.

Professor HOBDAY gave a practical demonstration of the operation, and afterwards read the following paper:—

The operation of median neurectomy is one which has only been practised during recent years, and has not yet become generally known in England as an operation of value. It was first performed by Peters, assistant in the Veterinary School of Berlin, about the year 1885, and in December of that year, he read an article on the subject before the Berlin veterinary surgeons at one of their meetings. It was introduced into France in 1892 by M. Pellerin, who was at that time assistant at the Alfort School; this gentleman brought the subject to the notice of the Paris Central Medical Society in 1892, and again in 1894. It has also been practised in Italy and Belgium. For the above facts I am chiefly indebted to the little book written by M. Pellerin, and published last year.

The operation itself is not a difficult one, neither is it accompanied by any particular danger if the anatomy of the part be first studied, and ordinary care taken; it consists simply in the excision of a portion of median nerve, high up on the inside of the elbow-joint, just below the internal condyle of the humerus. In order to attain this end, the animal should be cast on the side with the lame leg, and chloroformed; cocaine can be used, or the operation may be performed without any anæsthetic, but, as the nerve is a large one, it is, I think, best to use $CHCl_3$. There is also an additional advantage in the fact that the patient is still, and the leg can be stretched out to the fullest extent; besides which the operator can use his instruments with less likelihood of accidentally injuring any of the surrounding structures. The usual antiseptic precautions as regards the skin are observed; a cross-hobble is then applied, and the leg, released from the other hobbles, is pulled downwards and forwards with a rope attached to the hoof, in order to expose the surface to be operated upon, and render it as tense as possible; at the same time, it is of advantage to pull back the upper fore leg, and fasten it to one of the hind ones.

The operator, kneeling in front of the animal, close to the lower part of the chest and upper part of the fore-limb, makes a bold incision, about two inches long, through the skin and aponeurotic portion of the pectoralis transversus muscle, about one to three inches (depending on the size of the horse) below the internal condyle of the humerus, and immediately behind the ridge formed by the radius. This latter, together with the radial artery and median nerve, which can be felt in their passage over the elbow-joint, form the chief landmarks. This situation is chosen for several reasons. If one gets higher, there is more of the muscular tissue of the pectoralis transversus to be incised, and in attempting to operate near the elbow-joint, there is the risk of injuring that or pricking the radial artery; besides, in this situation there is a branch given off to supply some of the muscles at the back of the radius which it is not wise to excise unless we have particular reason for so doing, on account of the liability to atrophy as a sequel. If one gets lower, the nerve is difficult to find, as it buries itself deeply behind the radius between the bone and the flexor metacarpi internus. The hæmorrhage which follows this incision is not usually of consequence, and can readily be checked by pressure or by artery forceps. The edges of the wound may now with advantage be held apart by two blunt hooks held by an assistant, or by means of two pieces of tape or silk passed through either side, and tied underneath the limb.

We have now exposed to view the glistening white fascia covering the flexor metacarpi internus; this fascia, which is exceedingly tough, must be

very cautiously incised, when the white median nerve will be exposed, showing up in striking contrast to the red fibres of the muscle itself. If not fortunate enough to have cut immediately over the nerve this latter can be readily felt by passing one's finger under the fascia. The incision that we have just considered is the one about which most care must be exercised, as here we are in close proximity to the posterior radial artery and vein. These, however, can be distinguished from the nerve by the facts that the artery shows well-marked pulsations, and the vein is of a dark purple colour and readily collapses on pressure. Any pressure on the nerve itself causes the animal to evince signs of pain unless deeply anæsthetised. The nerve lies a little in front of the vein, and the artery is here below each of them. This rule, however, is not constant, as in several cases we have found variations. If the incision be made with an ordinary sharp-pointed scalpel, it must be done cautiously by raising the fascia with forceps and carefully guiding the blade, with the cutting edge upwards. It is much safer to lightly puncture the fascia, then introduce a director, and make the incision upwards with a probe-pointed bistoury. I have attempted tearing with the finger or a blunt tenaculum, but this is not a good plan nor easily done.

The next step is to raise the nerve and expose it to view. This is done by passing a blunt-pointed tenaculum underneath it, taking care to avoid injuring the artery or vein, and not to include either of these vessels. A portion of the nerve is raised from the surrounding structures and cut through with a blunt-pointed bistoury, or scissors, at its upper extremity, after which the lower part, which falls back into the wound, should be seized by forceps (artery forceps are most convenient) and pulled as far out of the wound as possible, until about two inches can be removed.

The tenaculum which I have found most convenient for this is one which was designed by Mr. Simpson, of Maidenhead; its advantages are that its shape enables one to get much greater leverage, and the fact of its being made of metal all in one piece enables it to be more easily rendered aseptic. The shape of the handle, too, is of great advantage when withdrawing the nerve, as by forcing it underneath one does away with the necessity for using thread, and also effectually protects from accidents the underlying structures.

The wound is well cleansed with antiseptics and sutured, the stitches being put close together (especially if one of of the veins has been accidentally pricked). Aseptic catgut is decidedly the best material to use for this, and it must be left to the discretion of the operator as to whether it is best to suture both muscles and skin, or skin only. The plan I have adopted has been to suture both when the wound has been large, but only the skin when the wound is small.

After treatment consists in the application of plenty of cold water and antiseptics, releasing one or more sutures if necessary for drainage, and allowing a fair amount of exercise.

Immediately after the operation, as soon as the animal has been allowed to rise, in several cases I have observed a peculiar trembling of the limb which has been operated upon, but this has disappeared after a few moments' exercise. When trotted the horse may at once show improvement, or may have lost all signs of lameness; the first few steps are sometimes taken in a peculiar manner, as if the animal perceived some difference, but this quickly passes off, especially when the patient is put to a sharp trot for some little distance. It is worthy of note that in many cases in which improvement is only very slight, immediately after the operation, the lameness completely disappears as the wound heals; this fact, I see, has been observed by most of those who have practised median neurectomy. On the 3rd or 4th day succeeding the operation the leg becomes swollen and the animal is very

stiff and sore. This is reduced by the application of cold water and gentle exercise; in a week the leg will be about normal in size again, and the wound will be the chief object of attention. If all goes well, this heals in from ten days to three weeks, and the animal can be put to work ten days or so later; the work should at first be very light, and should be gradually increased until the horse is doing whatever may have been its customary amount.

Now we come to the consideration of the cases in which the operation is likely to prove of value and to balance against that any bad sequelæ which are likely to ensue. The median nerve, as you will see in this dissected specimen which I have here, supplies with sensation almost the whole of the inside of the limb, it gives off small branches to the internal flexor of the metacarpus and a large branch to supply the other flexors of the limb. In the lower third of the radius it bifurcates into the external and internal plantars. As, however, the external plantar receives a branch from the ulnar nerve, section of the median does not totally deprive the outside of the foot of sensation. By sectioning the median nerve, then, below the branch which is given off to the flexor muscles, we do away with the fear of causing atrophy of these muscles, and deprive the greater part of the deeper structures on the inside of the limb (more particularly below the knee) of sensation. That the skin on both inside and outside is still somewhat sensitive can be readily demonstrated by the aid of a pin; sensation in the former is due to the presence of an anti-brachial musculo-cutaneous branch given off above the seat of operation, and in the latter to the branch of the ulnar nerve, which joins the external plantar. You will see, then, by a momentary study of the above, that the chief diseases likely to be benefitted are those in connection with the inner aspect of the bones and tendons.

For diseases below the fetlock joint, such as navicular, ringbone, sidebones, etc., there appears to me to be no advantage whatever over ordinary internal plantar neurectomy, and we have the disadvantage of having unnecessarily deprived a large part of the limb of its nerve supply. When testing its value for these diseases, if the outside of the foot was involved we usually found it necessary to cut the external plantar nerve afterwards, but for exostoses, such as splints, when placed well inside the leg and situated in such a way as to cause pain in a part supplied by the median nerve, or for chronically sprained condition of the flexor tendons, it certainly deserves a high place amongst the operations which we are called upon to perform.

Of course, like all neurectomies, it is not an operation which is to be indiscriminately advised. The chief sequelæ to be feared are those of softening and rupture of the flexor tendons, and sloughing of the hoof; but, according to those who have largely practised median neurectomy the percentage is small. It is an operation that is to be especially advised in those cases of exostoses situated under the inside of the knee on the cannon bone, and chronic tendonitis, in which all other known methods of treatment have failed, and all of us in practice in large towns know how frequently these cases occur. In London, amongst the class of worn-out cab and cart horses such as one gets in the Free Clinique I can testify most emphatically as to its value out of an experience of some 38 cases in which five were operated upon in both fore legs. Some of these cases have now been at work for more than twelve months since the operation; I traced most of them up a short time ago and could not detect any difference in their action, nor had the owners noticed any difference between the legs operated upon and the others.

Of these 38 cases, and some of them were apparently quite incurable ones with other methods of treatment, we were able to send 31 back to work (the majority of these showing no lameness whatever), two are still under treatment, two were not at all improved, and I have been unable to trace the

remaining three. At present there has been no rupture of tendons or sloughing of the hoof. That the latter may, however, occur I am able to assert from a communication recently made to a French journal in which one case has occurred out of 32 operations—not a large percentage.

In cases of chronic tendonitis alone the prognosis may always be good; this is shown by the experience of foreign authors, and it is also our experience in our Free Clinique. If complicated by splints situated well on the inside, or if the lameness be due to splints alone (especially if in the above-mentioned situation) the prognosis may also be good.

If the lameness be due, or partially due, to complications of exostoses on the lower part of the fetlock, ringbone, sidebone, or navicular disease, then it will frequently be found that the ordinary external plantar neurectomy will also have to be practised. In cases, however, of exostoses on upper part of fetlock, where the exostoses would remain in close proximity to the cut end of the internal plantar, and be likely to cause irritation, one can with advantage perform median on the inside.

Before concluding, a few words are necessary about instruments. The only ones we used for the first few operations were a scalpel and forceps, blunt spreaders, tenaculum, scissors, and a curved needle; but one can with advantage add to those a director, blunt-pointed bistoury, two or three artery forceps, and another tenaculum. It is always wise, too, to have a tourniquet at hand.

Lastly, I have here for the inspection of those who care to see them, a tabulated list of the operations that we have already performed, showing the lesions present, the immediate and ultimate results, the respective dates on which the operations were performed, and the animals sent to work.

The list of operations referred to by Professor Hobday is of a very instructive character. Particulars of 38 cases are given, the list including 11 cases of chronic tendonitis, 10 of exostoses, either of the cannon bone or the carpus, 12 of splint, and 4 of navicular disease. Out of the total 38 cases, 20 are reported as having been "in regular work ever since." Cases of ringbone are included, but this lesion was in each case accompanied by some other pathological condition. The cases of navicular disease are not satisfactory.

ROYAL (DICK'S) VETERINARY COLLEGE.

THE under-mentioned students of the Royal (Dick's) Veterinary College have passed the various examinations recently held by the Royal College of Veterinary Surgeons:—In Class A, John Lloyd Still; In Class B, R. R. Arthur and P. Donovan; in Class C (four years' course), R. W. Hadfield and J. B. Kay; in Class C (three years' theoretical portion), W. Hunter, W. Newman, W. D. Rees (with second-class honours), Alfred Scott, R. Wall, and J. Watson; Class C (three years' practical portion, and were admitted members of the Royal College of Veterinary Surgeons), W. Hunter, Newcastle-on-Tyne; W. Newman, London; W. D. Rees, Ferndale, Glamorganshire; R. Wall, Pittsburg, U.S.A.; H. O. Thomson, Calcutta; W. T. Bolton, Prospect Hill, County Durham; F. Richardson, Fence Houses, County Durham; E. J. Bolton, Athlone, Ireland; M. Bray, Bemerton, Wiltshire; W. H. Campsall, Rotherham, Yorkshire; E. Martin, Haslington, Cheshire.—*N. B. Agriculturist.*

NOTICE TO CORRESPONDENTS.

ILLUSTRATIONS, accompanying articles, should be drawn about twice the size they are intended to be when printed, so that they may be reduced, and so have any rough points toned down. It is also important for contributors to remember that drawings in *black* on *white* paper are by far the best for purposes of reproduction.

CONTAGIOUS DISEASES ANIMALS ACT, 1894.

SUMMARY OF RETURNS OF OUTBREAKS, for the four weeks ending December 12th, 1896.

ENGLAND AND WALES.

Pleuro-Pneumonia.	Swine Fever.	Glanders (including Farcy).	Rabies.	Anthrax.	——
None	Outbreaks confirmed 235 Swine slaughtered diseased or exposed to infection 2952	Outbreaks reported 70 Animals attacked 101	Cases reported in dogs 12 Other Animals 0 Dogs destroyed, having been exposed to infection 23	Outbreaks reported 33 Animals attacked 73	

Glanders in London—52 outbreaks, 71 cases.

SCOTLAND.

None	Outbreaks confirmed 11 Swine slaughtered 336	Outbreaks reported 7 Animals attacked 12	None	Outbreaks reported 13 Animals attacked 18	

IRELAND.

None	Outbreaks confirmed 18 Swine slaughtered 207	None	Cases reported in dogs 9 Other animals 3 Dogs destroyed, having bee n exposed to infection 8	None	

CHINOSOL: A NEW DISINFECTANT AND ANTISEPTIC.—Mr. Kühn, 36, St. Mary-at-Hill, London, has submitted to us a sample of a new disinfectant and antiseptic which he has just introduced, named Chinosol. The advantages claimed for it are (1) that it is non-poisonous, (2) is non-corrosive, (3) is readily soluble in cold water in any proportion, (4) acts as a deodoriser, (5) does not coagulate albumen, (6) has scarcely any odour. From a trial which we have made of this new antiseptic agent, we can fully bear out all that has been said in its favour. One of its great features is certainly its ready solubility in water, which will add considerably to its usefulness. Chinosol belongs to the Chinoline series. It occurs in the form of a crystalline powder of a yellow colour, and although an aqueous solution, is of a bright yellow hue; it does not cause any staining of the hands. We have, therefore, no hesitation in saying that the valuable properties of Chinosol should ensure for it a wide sphere of usefulness, and that it constitutes an important addition to our list of antiseptics and disinfectants.—*Medical Press.*

NEW ORDER RELATING TO SWINE FEVER.

Closing of Markets.

THE MARKETS AND FAIRS (SWINE FEVER) ORDER OF 1896 is dated December 11th, and will come into operation on January 1st, 1897. Its provisions vary in some matters of detail from those of former orders on the same subject, but in the main they are on the same lines.

Markets, fairs, exhibitions, and sales of swine are not absolutely prohibited, they never, indeed, have been by any order, but the holding of markets is restricted to certain purposes, and generally to the exposure for sale of swine for prompt slaughter.

Sales of store pigs (*i.e.*, pigs not destined for immediate slaughter) may take place by licence on certain conditions. So that when, in accordance with custom, it is said that markets are closed, a very liberal construction is to be permitted. What is really intended by the use of terms "the stopping or closing of markets," is the regulation of such sales and markets, which is a very different thing from total prohibition.

In the new order, the first article of importance is No. 3, which gives to local authorities power to licence the holding of an exhibition of swine, fat or store (not being in a swine fever infected area), on such conditions, if any, as they think expedient, and they may authorise the sale of swine at such exhibitions, but the authorities are directed not to grant a licence unless they are satisfied that the proposed exhibition is a *bonâ fide* agricultural show, and that the swine are to be exhibited thereat for competition.

Article 4 provides for the holding of sales of swine, fat or store, in cases where the animals have been on the premises where the sale is to be held for twenty-eight days. As a matter of course this provision implies the restriction of the sale to pigs belonging to one owner, or to pigs from several owners who have sent their animals to the farm or place a month before the date of the sale. In practice, however, it is usual for the sale to be limited to the swine belonging to the owner of the premises. One reason for this limitation, undoubtedly, is that the owner would naturally be indisposed to incur the risk of introducing swine fever along with fresh stock, a probability which is by no means remote, as however tree from suspicion the pigs on other premises may be, the risks which are incurred during transit have to be taken into account. In the case of a neighbour's pigs the risk is much diminished.

The next article applies to markets which are held in ordinary circumstances on special days—weekly or monthly, as the case may be. The provisions are those which will chiefly affect dealers in swine, and it may be convenient to quote those portions of the article which relate to marking the swine, time of slaughter, and regulations respecting movement from the market to the place of slaughter.

Markets, Fairs, and Sales of Fat Swine by Licence of Local Authority.

5.—(1.) A market fair or sale of fat swine (not being in a swine-fever infected area) may be held with a licence of the local authority on the following conditions (namely):

(i.) All swine exposed at the market fair or sale so licensed shall forthwith, after their arrival thereat, be marked by and at the expense of the owner, by the painting with an indelible composition of red colour of a broad line down the back and another broad line across the loins of each of the swine thus +, each line being not less than 9in. long.

(ii.) Every pig that is exposed at the market fair or sale so licensed, whether it is sold thereat or not, shall be slaughtered within four days after and exclusive of the day on which the market fair or sale is held.

(iii.) Swine exposed at the market fair or sale so licensed shall not afterwards be exposed at any other market fair or sale or at any exhibition in Great Britain, whether such other market fair, sale, or exhibition is held in any district to which this order applies or not, and such swine shall not be moved from the market fair or sale so licensed otherwise than in accordance with the following provisions of this article.

(iv.) Any swine exposed at the market fair or sale so licenseed may be moved from the place where such market fair or sale is held to any other place with a movement licence (in the form set forth in the schedule to this order or to the like effect) of the local authority in whose district the market fair or sale is held, which licence shall be in force for not more than five days inclusive of the day of issue and shall specify the name and address of the person to whom the licence is granted, and the name or description of the slaughter-house, pig-sty, or other place of destination to which the swine are to be moved.

(v.) If the place of destination is in the district of another local authority, then the local authority granting the movement licence shall cause a copy thereof to be forthwith sent to that other local authority.

(vi.) The swine moved under this article shall be accompanied by the licence required by this article.

(vii.) The swine while being moved under this article, and until they are slaughtered, shall, so far as practicable, be kept separate from all swine not marked for slaughter under this order.

(viii.) The local authority of the district in which the place of destination is situate shall take such steps as are necessary to ensure that the swine are moved to the said place, and are slaughtered there within four days after, and exclusive of the day on which the market fair or sale was held.

Other paragraphs of the article have reference to signing licences, posting them in convenient places, and other matters of an administrative character.

Article 6 contains the usual provisions for proper cleansing and disinfection of markets.

Washing and scrubbing, or scouring with water after sweeping are strictly enjoined; but it is left to the local authority to use any other kind of disinfection in addition as they may deem necessary.

Articles 7, 8, 9, 10 relate to the sending of copies of licences to the board, and to the reservation of power to the board to authorise movement, and sales or exhibitions of swine under exceptional circumstances, if they are satisfied that such movement or sales are necessary or expedient.

Article 11 is important, and is therefore quoted in full:

Attendance at Market Fairs and Sales.

11.—(1) A veterinary inspector of the local authority shall attend at every market or fair licensed under this order.

(2) A fit person or a sufficient number of fit persons shall be appointed by the local authority to attend at every market or fair licensed under this order, for the purpose of granting thereat on behalf of the local authority such movement licences as are required under this order.

(3) A fit person appointed by the local authority may, if the local authority think fit, on the request of the person holding any sale licensed under this order (other than a market or fair), attend thereat, and grant thereat on behalf of the local authority such movement licences as are required under this order.

The remaining articles refer entirely to procedure.

Another order in connection with the Markets Order was issued at the same time, for the purpose of applying the Markets Order to certain districts named in the schedule.

The list is a long one, and to economise space the names only of the implicated counties are given, with the proviso that the boroughs are generally included. The counties to which the Market Order will be applied on January 1 are: Ayr, Bedford, Berks, Buckingham, Cambridge, Chester, Denbigh, Derby, Glossop, Devon, Dorset, Durham, Essex, Flint, Forfar, Hertford, Huntingdon, Isle of Ely, Kent, Lancaster, Leicester, Lincolnshire (parts of Holland, parts of Kesteners), Middlesex, Norfolk, Northampton, Newcastle-upon-Tyne, Nottingham, Oxford, Rutland, Soke of Peterborough, Salop, Somerset, Southampton, Suffolk, Surrey, Sussex (West), Wilts, Worcester (excepting certain parishes otherwise provided for), Yorkshire (East, North, and West Ridings). It is understood that districts may be added by order of the Board of Agriculture as circumstances may render necessary.

Legal News.

VETERINARY SURGEONS AND THEIR CUSTOMERS. AN IMPORTANT CLAIM.—STOOKE v. BARLING.

At the Hereford County Court, on the 10th inst., before His Honour Judge Harris Lea, Edwin Stooke, land agent and auctioneer, Palace Yard, Hereford, brought an action against James Lionel Barling, veterinary surgeon, Hereford, to recover the sum of 1s. 6d. Mr. Hutchinson was for the plaintiff ; Mr. Harold Easton defended.

The Judge: I have not read the plaint yet, but I see it is a claim for 1s. 6d.

Mr. Easton : It is a very distinguished case, your Honour.

Mr. Hutchinson, in opening the case, said the plaintiff was a land surveyor and an alderman of the city, and the defendant was a veterinary surgeon. The action was brought to recover 1s. 6d. out of 2s. 6d. paid by the plaintiff to the defendant on the 19th of September through defendant fraudulently making a representation to the plaintiff. The plaintiff and Mr. Henry Hatton were talking in the bar at the Green Dragon Hotel about the plaintiff's dog, which was in a bad condition, and while they were talking about a powder for it the defendant chimed in. On hearing plaintiff say that he intended to get a worm powder for his dog from Messrs. Chave and Jackson's, he said, "I keep the best powders in Hereford. I buy a large quantity at a time. They are expensive, and cost me 1s. 9d. each; but I will let you have one at 2s. 6d." The plaintiff said he would have one. The defendant, however, instead of going home for the powder, as he represented he would do, went and bought one powder by retail from Messrs. Chave and Jackson, for the purpose of supplying the plaintiff, for 1s. He also got a piece of white paper, and stuck it on the back of the directions with the powder where the price was printed. He went back and handed it to the plaintiff, and was paid 2s. 6d. The powder was given to the dog on the following day (Sunday). The only occasions after that when plaintiff saw defendant was on September 22nd and October 7th. On the former all that was said was that defendant asked how the dog was, and plaintiff said, "Don't know," and on the latter plaintiff asked him to return the 1s. 6d. Yet the defendant filed a counter claim for 10s. 6d. for professional advice on the 23rd of September. The sum in question in this case being under £2 it was not necessary to annex particulars of claim to the summons, but as fraud was alleged, he (Mr. Hutchinson) thought it only fair to the defendant to give him those particulars.

The plaintiff said that on September 19th, in the evening, he was in the Green Dragon Hotel talking to Mr. Hatton, with whom he had been shooting a day or two before, He was telling Mr. Hatton that his setter dog was very thin, and that his wife was very anxious about it—because it was a very handsome dog—and said that, as he thought it had worms, he intended going across to Messrs. Chave and Jackson to get a powder. He said to Mr. Hatton, "Can you tell me the best worm powder to get?" Mr. Barling then came across the room and said, "I have got the best worm powder in the world." Plaintiff said, "What do you charge for it?" The defendant said "2s. 6d. They cost me 1s. 9d. each in taking a large quantity." Plaintiff then said, "Can I get one at the chemists', Messrs. Chave and Jackson's?" and the defendant said "No." The plaintiff said, "Very well, I cannot object to pay 2s. 6d. if they cost you 1s. 9d. each." Saying that he would go and get one, the defendant then left the room. When he returned he handed plaintiff a powder, and said "The instructions are inside." The paper on which the directions were printed was pasted over at the back, so that the price paid for the powder could not be seen. On the 22nd plaintiff met the defendant in Broad Street, when the latter asked how the dog was, but the

plaintiff was so disgusted with the transaction that had taken place that he only said in an off-hand manner "Don't know," and passed on. He did not see Mr. Barling again until October 7th. In the meantime plaintiff went to Messrs. Chave and Jackson's and bought a powder for 1s. identical to the one sold him by Mr. Barling for 2s. 6d. In regard to the counterclaim he had never consulted Mr. Barling at all, and it was not likely that he would after the way in which he had served him. And in the Dragon he was not asked for his advice; he intruded himself upon them.

Cross-examined by Mr. EASTON: The dog was a pet of Mrs. Stooke's, and she did not like to take it out because it was thin. He had not given cod-liver oil biscuits to the dog. He heard them mentioned on the Saturday night, but he did not remember by whom. If Mr, Barling swore that he mentioned them then he would not say he did not. In the conversation at the Dragon Mr. Barling introduced himself; neither he nor Mr. Hatton asked him about the dog.

Mr. EASTON: You agreed to buy this particular powder from Mr. Barling, and to give him 2s. 6d. for it?—The PLAINTIFF: Exactly.

And now you do not like your bargain?—No, because I was done. I should have been pleased to pay for advice if I had asked for it.

Can you swear where the powder came from?—Not exactly, only by the similarity of the powder which I bought myself from Messrs. Chave and Jackson's, with the same kind of instructions.

HENRY HATTON corroborated as to what took place in the Green Dragon Hotel. When Mr. Barling left the room the plaintiff said, in a jocular way, "I know I'm going to be had." Cross-examined: Mr. Stooke agreed to pay, and did pay, the 2s. 6d., although he had previously made up his mind that he was going "to be had."

RICHARD GRAVES HOOK, assistant at Messrs. Chave and Jackson's, stated that on the eve of September 19th Mr. Barling went to their shop for a worm powder. They would charge him, being a veterinary surgeon, about 9d. or 10d. for it, but the full selling price was 1s. It was booked to him. When it was given to him he opened it and cut the directions out. He then asked for a piece of white paper, which was given to him, and he stuck it on the back of the directions, covering up the manufacturer's name and the price. He also asked for a plain envelope, without Messrs. Chave and Jackson's name on, in which to put the powder.

Mr. EASTON submitted that the plaintiff had not made out his case. Mr. Stooke agreed to give the 2s. 6d., with his eyes open. There was a specific agreement to pay the 2s. 6d. As to the counter-claim, which was not pressed, Mr. Stooke spoke to him about the dog on the 22nd, and Mr. Barling advised him to give it cod-liver oil biscuits.

The JUDGE said he could not say there was no case, because fraud was alleged.

The defendant was then sworn. He said that when in the "Dragon" Mr. Hatton said the dog had worms, and that very often kept dogs thin. Turning to him, he asked, "Doesn't it, Barling?" Defendant then went on to give advice. He said if the dog had not got worms the best thing was to give him some cod-liver oil biscuits; but if he had got worms there was a specific powder, which was the finest thing the veterinary surgeons knew of, the worst of it being that it was rather expensive. The plaintiff then said he would have a powder. If he (the defendant) said the powders cost him 1s. 9d. he must have meant at the time to give the dog two powders—one was not enough for a big dog sometimes; but on reflection afterwards, seeing that the dog was so thin, he deemed it best to give only one powder. On the following Tuesday or Wednesday he had a conversation with Mr. Stooke in Broad Street, and advised him about the dog. On a subsequent date Mr.

Stooke came into the Dragon "like a madman," and said "You are a thief. You robbed me of 1s. 6d. and I will show you up."

Mr. HUTCHINSON (to the defendant): Why did you paste the white paper on the back of the directions?—The DEFENDANT: Not to let Mr. Stooke know the manufacturer. It is a specific article made for a specific purpose.

Did you tell Mr. Stooke he could not get this powder at the chemists'?—No. I said we, as veterinary surgeons, use them largely.

Do you swear that what Mr. Stooke has said about that is untrue?—I don't know what he has said.

Did you tell Mr. Stooke that the powders cost you 1s. 9d. each wholesale?—When I said that I meant to give the dog two powders, which would cost me 1s. 9d. wholesale.

You say he came at you like a bull?—Well, you know—he was like what people get on market afternoons – so you may guess; and he is not very genial at the best of times.

The JUDGE (to the defendant): Then, although you only supplied one powder you charged the price of two?—The DEFENDANT: Yes. Then we charge for advice—brains; it is not only medicine.

PERCY C. HALES, of the Capital and Counties Bank, said that when he had a dog ill he took it to Mr. Barling. The charge was 2s. 6d.

MRS. STOOKE was called, and, in answer to Mr. Easton, said this dog had been fed with biscuits in the usual way, but it had not had special treatment. Beyond that she did not know anything about the matter.

The JUDGE said the conclusion he was bound to come to was that there was a misrepresentation. Mr. Barling himself admitted that he said the powders cost him 1s. 9d. each wholesale, and he had tried to explain that away in a very unsatisfactory manner. If he only gave one powder instead of two, as he said he intended in the first place, he should have charged less, especially after the remark which he made to the plaintiff to the effect that the powders were very expensive. Under the circumstances the plaintiff was entitled to the return of 1s. 6d., and costs would follow the event on the £10 scale, the counter-claim being dismissed.—*Hereford Times.*

Notes and News.

BEHRING'S ANTITOXIN.—The Berlin correspondent of the *Standard*, writing on Monday, December 21st, says:—Dr. Cuno has related the experiences of the effects of Behring's antitoxin in Dr. Christ's Hospital for Children in Frankfort-on-the-Main. Four hundred and eighty-three diphtheria cases were treated with antitoxin. Two hundred and twenty-eight of these were severe, a hundred and twelve of moderate severity, and eighty-nine slight. There were fifty-one deaths—that is, 10·5 per cent., and if we deduct the patients who were dying when brought to the hospital and those who died of other diseases after being cured of diphtheria, the number of deaths was only thirty-four—that is, 7·03 per cent. The significance of these statistics can be appreciated only by comparing the two years during which these cases occurred with the preceding years. In 1889 the death percentage was 39·4, in 1890 36, in 1891 32·6, in 1892 33·8, in 1893 43·8, in 1894 (before September 30) 36·4. When antitoxin was used all local treatment was refrained from, the doctors being convinced that the regenerative processes of the mucous membrane of the pharynx are only retarded, aud the pain felt in swallowing increased thereby. In seventy-six cases weakness of the heart was observed. The fact that this symptom was somewhat more frequent

than before is not surprising, for just the children who now suffer from weakness of the heart died most suddenly before. As regards complication, such as nephritis and paralysis, the experience was not unfavourable, and no bad effects were observed after the injections. In eight cases an abscess formed at the place where the injection was made, owing, probably, to the children tearing off the plaster, which causes itching.

THE MUZZLING ORDER AND ITS EFFECT ON SPORT.—At the Stratford Petty Sessions, on Saturday, December 12th, George Currie, of Eastbrook End Farm, Dagenham, was summoned under the Muzzling Order for allowing a dog to be at large without a muzzle on November 20th. Mr. George C. Allen, an inspector under the Essex County Council, prosecuted.—The defendant said he was shooting rabbits. The dog went on a wrong scent and got on to the road, about thirty yards away from him.—Police-sergeant Beard, K Division, Metropolitan Police, of Dagenham, said the road was 200 yards from where the defendant was shooting.—Defendant: I had a gun with me.—The Chairman (to the policeman): Had he a gun?—Sergeant Beard: Yes, that is true.—The Chairman: This is all right! I'm very glad you don't live in my district, Mr. Allen, or I'm afraid you would have me.—Mr. Allen: I don't report the cases; the police do that.—The Chairman (to the defendant): You got permission to be on this land, I suppose?—Defendant: It is my mother's land.—The Chairman: Well, I don't see how we can convict. It will stop all sport if we do.—A consultation took place among the justices, and the Chairman then said to defendant: I am afraid you have broken the law. You will be fined 1s., and we will remit the costs.

DISINFECTING CATTLE SHIPS.—Considerable alterations are about to be made by the Board of Agriculture in the regulations directing the disinfection of cattle ships. Two years ago the ocean shipowners engaged in the carriage of cattle by sea, through Mr. R. Cattarns, their professional adviser, addressed representations to the Board as to the loss and difficulty which, under the existing foreign animals orders, attended the loading of vessels after the discharge of foreign cattle. These representations were supported by petition, and, after considerable negotiation, throughout which the courtesy of the officials of the Board of Agriculture was always recognised, an agreement was arrived at, under which certain important changes were agreed upon. The new order, which will shortly come into operation, will permit the immediate loading of vessels in every compartment which has not on the previous voyage contained cattle; in the compartments which have previously been occupied by cattle, loading will be allowed to be begun as soon as the compartments have been cleansed and disinfected; and, in future, the supervision of the cattle-carrying ships will rest with the Customs authorities, instead, as in the past, with the port sanitary authorities. Provision will also be made for the cleansing and disinfecting of horse-boxes and horse-stalls. Shipowners have given an undertaking that they will cordially co-operate with the Board of Agriculture in securing the strictest fulfilment of the requirements of the new order.

THE rumour that a Russian physician had discovered a cure for cancer has taken a definite form, and we are now informed that a remedy is found in the "Chelidonium majus," which is known as Greater Celadine or swallow-wort. It possesses a milky, saffron coloured juice which is used by peasants for the destruction of warts. The first time Dr. Denisenko drew attention to this cure, he merely asserted that it could also be employed with satisfactory results against the external growths of cancer, just as the peasants used it against warts, and for removing specks on the cornea. A new communication of his has just appeared in the same review in which he further maintains that it can be taken internally with excellent effects. For this purpose, however, it must be specially prepared, inasmuch as the juice in its

natural state contains two potent poisons. Mr. Denisenko describes seven cases of cancer which he has treated by means of swallow-wort juice. Four of these were external cancerous growths upon which a surgical operation was, for various reasons, out of the question. The doses of the new specific were necessarily very small at first, and were very gradually increased. The photographs of the results which the physician has published, together with his article, show the effects of the Chelidonium majus, which finally removed every trace of cancer in the stomach. Details of a scientific character will be awaited with some impatience, for if only a little of what has been stated is found to be true, it will be of importance, as a cancer of the œsophagus, for instance, is believed to be incurable.

A PAPER on the "Bacterial Purification of Water," by Dr. Percy Frankland, F.R.S., was read at a recent meeting of the Institution of Civil Engineers, the author dealing with the more important advances in the subjet since he brought it before the Institution ten years ago. The spontaneous disappearance of bacteria in running water when aërated in the sunshine was referred to, and the more important branch, water purification by artificial processes, occupied the latter part of the paper, and will be of most interest to engineers. The importance of a preliminary purification of the unfiltered water by storage in reservoirs was pointed out. Not only did the coarser particles in suspension become deposited during storage, but a large number of the bacteria present also succumbed to sedimentation. This important fact had been first demonstrated by the author in 1885 in the course of numerous experiments he had made on the removal of micro-organisms from water. More recently he had studied the bacterial value of sedimentation on a practical scale at the reservoirs of the London water companies. The necessity of slow and uniform filtration through the sand was insisted upon if satisfactory results were to be secured. The depth of the fine sand employed in filters was discussed, and experiments were cited showing the advantages to be derived from the use of a thick layer of the material. Attention was also directed to the size of the sand grains employed, and the effect of this factor upon the bacterial quality of the filtrate; and the results of mechanical analyses of sands derived from filter works in different parts of Europe were given. The filtering power of the surface layer of slime was referred to, and its incapacity, if unaided, of yielding satisfactory filtrates was pointed out, experiments being quoted to show the further removal of bacteria in the subjacent layers of fine sand. The effect on the quality of the filtrate of cleaning the filters was also pointed out.

ANTHRAX.—At the meeting of the Westmoreland County Council, on December 11th, the Cattle Plague Committee presented a report on the subject of anthrax. Several outbreaks of the disease have occurred in Westmoreland in the last six years, and recently, on the motion of Lord Brougham, the local authority was requested to make inquiries for the purpose of endeavouring to trace the origin of the disease, with a view to endeavour to prevent its recurrence. Mr. Dunne, the Chief Constable of Cumberland and Westmoreland, inquired in every county in England, Wales, and Scotland the particulars of similar outbreaks. The inquiries were on the following points, extending over the last six years:—"Number of outbreaks distinguishing renewed cases and their dates, whether the veterinary inspectors were able to give any opinion, and if so, what, explaining their origin, whether any of them were traced to bones used for manurial purposes, or to foreign grain, or cakes, used for feeding on the infected farms, and generally the course adopted by the local authorities to prevent renewed outbreaks of the disease." Mr. Dunne, in his reports, states that he received replies from 49 counties

showing that anthrax existed on 995 farms, where 1,161 cattle, 118 pigs, 117 sheep, 47 horses, and one dog were affected, and that intervals of from five days to eight years elapsed between the first and renewed outbreaks on the same farm. No replies to the circular were received from 35 counties. The opinions generally given by the veterinary inspectors are that the presence of bacilli anthracis, either in feeding-stuffs, manurial agents, or in soil where carcases have been imperfectly buried, is the main cause of outbreaks of anthrax. In the county of Surrey, Professor Axe, the veterinary authority, states that one outbreak was caused by manure and offal from kennels. In some counties it is stated that the animals said to be affected with anthrax died from other diseases. The nine Veterinary Inspectors of Warwickshire state that artificial manure, sewage contamination of streams, refuse drainage from tan works, foreign food stuffs, grazing on land where cattle have been buried which died of anthrax, stacking bones in farmyard, and improperly drained land, is the cause of outbreaks of anthrax. The opinion given by the veterinaries of many other countries are substantially similar to these. No evidence can be obtained in any county which definitely shows the cause of the disease. It is, however, quite evident that all the scientific resources have so far failed to show the origin of, or the remedy that should be applied to prevent, the frequent recurrence of the disease. It is stated that in several districts diseased carcases are not carefully buried, and that the skins of diseased animals are often sold in the markets or at tan yards. In places where carcases are not buried properly, worms are snpposed to gradually work up to the surface and spread the germs of the disease. To guard against that risk it is recommended that the diseased animals should be buried in trenches nine or ten feet deep, with a foot of lime below, above, and around the carcase, and that the legs should be tied to the body to prevent their protruding above the lime. It is also recommended that diseased carcases should be destroyed by chemical agents instead of being improperly buried.—*The Field.*

Note on a Case of Poisoning by Areca Nut. (By Ernest H. Cook, D.Sc. (Lond.), A.R.C.S., Clifton Laboratory, Bristol).—The powdered nut of *Areca Catechu* is largely used in veterinary practice as a tœnicide, and is in especial favour with those amateurs who are accustomed to treat their own dogs for an attack of worms. Cases of poisoning following its use are rare, and the following particulars of one which has recently been met with in ordinary analytical practice are therefore communicated. A teaspoonful of areca nut in fine powder (about 56 grains) was added to half a teacupful of castor oil, and administered to four Dachshund puppies of the same litter, aged five months. So far as can be ascertained, the substances were thoroughly mixed, and approximately equal amounts given to each. All the dogs were highly bred and in fairly good health previously. In less than five minutes after administration they were seen to be in distress. They had great difficulty in breathing, coughed slightly, and fell down on one side. Locomotion was only possible with difficulty. Seeing their condition, the owner endeavoured to administer salt and water as an emetic. This was successful in two cases, but not in the others. The latter gradually got weaker, became unable to rise, and died in ten minutes. No convulsions or convulsive twitchings occurred. Respiration gradually became more and more difficult until death quietly ensued, intelligence being maintained until the end. The bowels were not moved. A third dog died after languishing for five hours, notwithstanding the successful administration of the emetic. On *post-mortem* examination the stomach was found to be slightly inflamed, the inflammation being general and not in patches. The trachea and some of the lung passages were filled with a dense white froth.

The left ventricle was found gorged with blood, as was also the aorta and left auricle. The right auricle and ventricle were comparatively empty. The other organs were normal. The iris showed no alteration from its normal size. The contents of the stomach were extracted with weak alcohol and dilute acetic acid, and the usual tests for the more commonly occurring alkaloids applied. (This was done because the owner, who has been in the habit of frequently giving areca nut to his dogs, was of opinion that that substance could not be the cause of death, but that some more powerful poison must be present.) None of these were found, but Mayer's re-agent gave an alkaloidal precipitate with the extract. The amount of substance available was, however, so small that beyond this no confirmation of the presence of the arecoline—the poisonous alkaloid in areca nut—was possible. The whole circumstances of the case, as well as the absence of the other alkaloids and mineral and other poisons, all of which were unsuccessfully tested for, can leave no doubt that death was caused by the nut. Assuming that each dog had an equal quantity, the amount was approximately 14 grains. It is, however, quite a common thing for doses of a drachm (60 grains) to be administered without ill effect. It would thus appear that the action of the substance is uncertain, and that its employment therefore requires great care. It should be mentioned that the unused portion of the sample was sent for analysis and thoroughly examined, but no poisonous substance other than that in the areca nut could be discovered.—*Chemical News.*

SAVED BY HIS HORSE.—A graphic narrative is told in the *Natal Advertiser* by Surgeon-Captain Grey, one of the officers who served in Rhodesia. In the attack on Mashangombi's the horses began to drop, and soon thirteen lay on the ground, and it looked as it the men would all be killed. Evidently Captain Turner thought so, for he virtually gave the order, "Sauve qui peut," telling every man to fight the best he could for his own hand. But though the horses continued to fall, the men escaped. Dr. Grey, to use his own words, "led towards the way out under a raking fire at a gallop, and was closely followed by the troop. Very soon, however, I fell from the saddle, struck with a bullet from an elephant gun about five-hundred yards off. The bullet struck me on the top of the thigh, smashing the socket of the thigh bone, breaking a vein, and otherwise wounding me. My horse was carried on at full speed with the rear guard, which rushed at desperate speed to clear the pocket-like entrance of the drift, where the natives were rallying in the hope of killing us. As I lay on the grass, bleeding profusely, I looked up and saw two natives aiming at me, at a distance of about forty feet. At the same moment I saw my horse come thundering back from the drift. It suddenly stopped and came and stood over my prostrate body, covering me from the firing, and at the same time making a peculiar noise through its nostrils. I thought it had been wounded, and that with the pain, noise, and confusion it had gone mad. This notion, however, was soon dispelled, for it continued to stand over me in a kneeling position, and I could see that the faithful animal had come back to protect me. I may remark here that this horse, which I myself selected, I made a pet of. The assegais from the approaching natives were now beginning to fly around me, and thinking if I could reach my horse's back I should be shot, which was preferable to being assegaied, I seized the reins, put my right foot in the stirrup, and made a supreme effort to mount. And I was successful; but how I did it I do not know, for my left side was entirely paralysed. On finding myself in the saddle, I called 'Go' to my horse, which darted like an arrow towards the exit from the drift." The captain adds that the horse was an old pet of his, and had always been made much of.

Army Veterinary Department.

Extract from *London Gazette*, dated 8th December, 1896:—"Veterinary-Major J. Hammond is placed on retired pay. Dated 9th December, 1896."

"Veterinary-Captain F. Smith, F.R.C.V.S., to be Veterinary-Major. Dated 9th December, 1896."

Death.—We regret to announce the death of Vet.-Capt. M. C. Mitchell, which occurred at Kilkenny on 4th inst. The deceased officer entered the Army 14th June, 1873, and was attached to the Royal Artillery. He served eleven 10-12ths years in India, and was present during the Afghan campaign of 1880, for which he was granted a medal. He also served in Egypt during the campaign of 1882 and was present at the action of "Mahuta" and battle of Tel-el-Kebir, for which he was granted a medal, with clasp for "Tel-el-Kebir" and bronze star. He was placed on half-pay on the 17th February, 1892, owing to ill-health.

Arrivals, &c.—Vet.-Captains J. A. Nunn and R. W. Burke arrived for duty at Woolwich, 9th instant.

Vet.-Lieut. J. Moore arrived from Egypt, 8th instant, for duty at home, having completed his tour of foreign service.

Vet.-Lieut. W. B. Knight embarked for India, 11th inst. to complete tour of service in that country.

Vet.-Lieut. E. Wharnder is posted to Newbridge for duty, *vice* Vet.-Lieut. J. T. Coley, under orders for service in India.

Vet.-Lieut. T. E. W. Lewis embarked 18th inst. for service with Egyptian Army.

Owing to an increase in the Indian Establishment, Vet.-Lieuts. A. C. Wilson and W. S. Anthony have been placed under orders for service in India.

Reviews.

RELAZIONE E SCHEMA DI REGOLAMENTO SULLA POLIZIA SANITARIA VETERINARIA. (Roma: G. BERTERO).

Our distinguished contemporary, Dr. Lanzillotti Buonsanti, of the Veterinary College, Milan, sends us this pamphlet which contains a summary of the measures proposed by a specially appointed commission of veterinary surgeons, for adoption by the Italian Government, with the object of stopping the spread of disease amongst domestic animals in Italy. It deals with rinderpest, pleuro-pneumonia, anthrax, tuberculosis, glanders, rabies, and other deadly diseases; it recommends that all contagious diseases be reported to the authorities at the earliest possible moment, under a penalty of loss of indemnity; next it recommends isolation of the infected or even the suspected animals and their slaughter when the case is hopeless, with careful disinfection of stables, etc. It urges rigorous inspection at fairs and markets, and most minute care in the disinfection of railway waggons and other vehicles used in transport. It lays down regulations for the inspection of the stables of hotels and inns, as possible centres of disease, and gives a special section to sanitary precautions requiring to be observed on the frontier, so as to prevent the introduction of disease from foreign countries. These recommendations have been adopted by the Italian Government, and duly codified. A scheme for the indemnification of stock-owners has been prepared and likewise a list of penalties for neglect of precautions or infringement of regulations; thus an owner who neglects to report an outbreak of infectious disease renders himself liable to a penalty of from £1 to £20, so does the

veterinary surgeon called in to see the case, and so does any innkeeper who harbours the animal; the surgeon who carelessly grants certificates without seeing the animal, subjects himself to the same penalty, and this is doubled if it can be shown that disease has been thereby spread. Empirics who interfere in such cases are liable in the same way, in addition to the penalty for practising as surgeons without having a licence. Railway officials who neglect to disinfec cattle trucks according to law, or who do this without the supervision of a surgeon, or who receive animals for transport without a proper certificate, are subject to the same penalty. Severe punishment is meted out to other offenders. Thus imprisonment for from two to six months, with a penalty of from £4 to £40, is the punishment for those who sell animals affected with, or even suspected of, infectious disease, or who open up the trenches in which diseased animals have been buried for the purpose of removing the flesh or skin, or who introduce diseased animals into Italy surreptitiously. The same punishment is inflicted on the surgeon at a frontier station who carelessly allows infected animals to pass; or he may lose his post if a Government official. The severest punishment is inflicted on those who sell diseased meat for human food; they are liable to imprisonment for from six months to three years, and to a fine of £80. Clearly Italy is in earnest in her desire to stamp out disease.

BACTERIOLOGICAL DIAGNOSIS. By ST. GEORGE REID, Bacteriologist to the Central London Throat and Ear Hospital.

This is a very neat and most useful book covering, with a comprehensive index, some sixty-four pages of well-printed matter, giving a comprehensive description of the present known micro-organisms in a condensed form. I can heartily recommend it to all students of bacteriological science, who will find as the author states that "These notes are intended merely as an analytical key to bacteriological diagnosis, the object being to secure as far as possible a differentiation at once rapid, accurate and simple." I trust that an illustrated edition will soon be required, the only drawback to the present production arising from the absence of illustrations.

OLIPHANT'S LAW OF HORSES, RACING, GAMING, ETC. 5th edition. By C. E. LLOYD, B.A. Oxon., of the Inner Temple, Barrister-at-Law. (Sweet & Maxwell, Ltd.)

Oliphant's work, the standard upon the law of horses, has now appeared in a 5th edition, containing most, if not all, the points which should guide the buyer and the seller of horses, as well as the veterinarian acting between the two.

In the introduction the author recommends that warranty should seldom be given. He says: "But it appears that soundness is a subject on which, from the nature of the case, a warranty should very seldom be given, for there seems no reason why a person who buys a horse should not act as he would in any other transaction where there is risk. For instance, a man buying a house does not merely examine it himself, and then, because he likes it, buy with a warranty; but he takes his surveyor with him, who points out all its defects, and then he buys it or not, according to the opinion he may form of its value after these have been taken into consideration." The author gives further advice both to buyer and seller, which, if acted upon, would simplify horse buying and horse selling transactions, be much more satisfactory, and would prevent many a vexatious action at law.

The difficulties of carrying the suggestion into effect are very numerous. Firstly, the purchaser very often has such a high opinion of his own horsey

knowledge that he would look with scorn on anyone suggesting the desirability of calling in the aid of a professional man; and, secondly, comes the objection of the seller, if he be a dealer, to have his horse examined except by his own particular veterinary surgeon, to which suggestion the purchaser often consents.

As purchases are often made by word of mouth, it is pointed out that matter talked of at the commencement of a bargain may be excluded by the language used at its termination, and that if a contract be in the end reduced into writing, nothing which is not found in the writing can be considered as part of the contract, &c., and for the first 48 pages the book deals with many matters of great importance to purchasers and sellers of horses. In the next six or seven pages are the questions relating to fairs, horse-stealing, and the recovery of stolen horses, then the writer passes to the consideration of "unsoundness and vice," and gives the present state of the law, and after pointing out the difficulty of fully explaining the meaning of the word "sound," as applied to horses, ventures upon the following definition:—"We may define a horse sound when he is free from hereditary disease, is in the possession of his natural and constitutional health, and has as much bodily perfection as is consistent with his natural formation." This is a fair but not a perfect definition of the term, sound; then we have the difference between unsoundness and vice pointed out, and as we read on it becomes apparent that the author would have done better if he had had the work revised by a veterinary surgeon. No doubt his law is good and correct enough, but when he comes to deal with purely veterinary matters, it is seen that his legal, is better than his veterinary knowledge; his definition of bone-spavin is very funny; then we have a revival of chest founder or anticor, terms which have been long obsolete in veterinary practice. The remarks on cough are good and to the point. It is held that crib-biting is not an unsoundness, but a vice until it has produced disease, or alteration of structure, and in support of this assertion the ruling of Mr. Baron Parke, who told a jury that to constitute unsoundness, there must be either some alteration in the structure of the animal whereby it is rendered less able to perform its work, or else there must be some disease. Whilst reading the above one cannot help thinking that "Homer nods."

Under the term "Grogginess" we are treated to some peculiar anatomy, such as "ulceration within the joints and of the membrane which lines the cartilage." It is evident that the term "Grogginess" is applied to a condition distinct from that now recognised by veterinarians. In the paragraph upon hereditary disease, we are treated to a description of a law case in which it was stated that the sheep in dispute were unsound from a disease termed "Goggles," but as to what goggles means the reader is entirely left in the dark.

In a book written by a Scotch advocate it is quoted that a Lord of Session, a Scotch Judge, ruled that a temporary lameness was not an unsoundness. In the work before me the writer more correctly says that it is an unsoundness however temporary or however obscure it might be, as it lessens the utility of the horse and renders him unsound for the time.

This is clear and distinct, and appeals to everyone's judgment and commonsense.

On page 91 the judgment of Sir James Mansfield, C.J., and Lord Ellenborough's concurrence with that judgment is quoted. He says, "It has been held by very high authority (Sir James Mansfield, C.J.), that roaring is not necessarily unsoundness, and I entirely concur in that opinion," etc. I think it is a pity that these opinions should continue to be quoted; they are exploded long ago, and should be allowed to remain in the oblivion which they deserve.

Whilst showing a tendency to adhere to obsolete terms and to describe conditions proved to be purely imaginary, the book is well worth a place in the library of every veterinary surgeon.

STUDIEN UBER DAS KEHLKOPFPFEIFEN DER PFERDE, VON K. GUNTHER. (Karlsruhe: Verlag der *Deutschen Thierärztlichen Wochenschrift*).
ON ROARING IN HORSES. By K. GUNTHER.

This is a brochure by the Principal of the Veterinary College at Hanover, which has already reached its second edition, and deservedly so, as it is a model of what such monographs ought to be. It treats first of the anatomical and physiological aspects of the question, and then goes on to the pathological The author gives a list of causes to which the malady is falsely attributed, as for instance, abnormal length or thinness of the throat, great development of the vascular system with lack of adipose tissue, hypertrophy of the heart, and fluid in the pericardium. He next reviews the true causes, as strangles, angina, influenza, lead-poisoning, and then discusses the feeding stuffs which may give rise to it, as lucerne (*medicago sativa*), vetchling (*lathyrus sativus*), chick-pea (*lathyrus cicer*), and in this connection refers to the important contribution by Professor Macdougall to the VETERINARY JOURNAL of January, 1895. Dr. Günther devotes a short chapter to the hereditary aspects of the disease and its transmissibility, and then proceeds to its diagnosis and to a description of the symptoms and course. He gives a number of "aphorisms," or brief statements, to be impressed upon the mind of the veterinary surgeon, and he concludes a valuable treatise with a chapter on the therapeutics of the question, and a description of the operations which the surgeon may be called on to perform.

Obituary.

Ross, H., Inverness, N.B.	May, 1889.
Vasey, N., New York, U.S.A.	Dec., 1872.
Patterson, C., Dewsbury, Yorkshire	April, 1866.
Strutt, P., Kelso	April, 1835.
Martin, S. W., Chesterfield	Jan., 1885.
Lucking, T. S., Clapham, S.W...	March, 1887.
Shorten, A. E., Ipswich	March, 1886.
Baker, S. W., Chelmsford	March, 1887.
Mitchell, Vet.-Capt., A.V.D.	April, 1873.

Communications, Books, Journals, etc., Received.

American Veterinary Review; Journal of Comparative Medicine; Australian Farm and Home; Results of Use of Tuberculin, by James Wilson, M.A.; Bacteriological Diagnosis, by St. John Reid; Recueil de Médecine Vétérinaire (Alfort); Le Bulletin Veterinaire (Orleans); La Presse Vétérinaire (Paris); L'Echo Vétérinaire (Liége); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); La Clinica Veterinaria (Milan); Il Nuova Ercolani (Pisa); La Revista Veterinaria (Buenos Aires).